МІНІСТЕРСТВО ОСВІТИ І НАУКИ, МОЛОДІ ТА СПОРТУ УКРАЇНИ
ХАРКІВСЬКА НАЦІОНАЛЬНА АКАДЕМІЯ
МІСЬКОГО ГОСПОДАРСТВА

МЕТОДИЧНІ ВКАЗІВКИ
ДЛЯ ОРГАНІЗАЦІЇ ПРАКТИЧНОЇ РОБОТИ З ДИСЦИПЛІНИ

«ІНОЗЕМНА МОВА (ЗА ПРОФЕСІЙНИМ СПРЯМУВАННЯМ)»
(АНГЛІЙСЬКА МОВА)

*(для студентів 1 курсу денної форми навчання
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Методичні вказівки для організації практичної роботи з дисципліни «Іноземна мова (за професійним спрямуванням)» (англійська мова) (для студентів 1 курсу денної форми навчання напряму 6.050701 «Електротехніка та електротехнології» спеціальності «Електротехнічні системи електроспоживання» / Харк. нац. акад. міськ. госп-ва; уклад.: С. А. Бучковська. – Х.: ХНАМГ, 2011 – 100 с.

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Методичні вказівки призначені для організації практичної роботи студентів у першому семестрі згідно з затвердженою робочою програмою навчальної дисципліни «Іноземна мова (за професійним спрямуванням)», укладеної відповідно освітньо-кваліфікаційним вимогам до знань і вмінь студентів напряму підготовки «Електротехніка та електротехнології», які в майбутньому будуть працювати у сфері електричного електроспоживання.

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MODULE 1.2

UNIT 1

1 LEAD-IN

Introduce yourself to your partner and interview him or her putting the following questions:

1. How long have you been learning the English language?
2. What is learning English for you? (a hobby, a pleasure, a necessity, an effort, an opportunity, a problem, a nightmare? Why?
3. What do you think you will need English for?
    - travelling abroad on business and for pleasure;
    - getting interesting and competitive job;
    - reading professional literature;
    - socializing with colleagues and clients from other countries;
    - doing business on the phone;
    - writing e-mails, letters and faxes;
    - taking part in conferences and meetings;
    - giving presentations
4. Why are you learning English? What do you want to achieve? Number the statements in order of importance for you:
    - to read without using a dictionary;
    - to improve my listening skill;
    - to make fewer grammar mistakes;
    - to speak more confident;
    - to enrich my vocabulary;
    - to write better and clearer English.

2 READING

EVERYDAY ENGLISH AND TECHNICAL ENGLISH

At present, the contacts between people of different countries are increasing. This enhances the importance of the study of foreign languages. The matter is that the total number of languages in the world is very large. In different reference books it varies from five to eight thousands. The numerical distribution of people speaking different languages is extremely uneven. There are not many languages in the world each of which is spoken by more than 50 million people. On the other hand, there are languages spoken by only several thousands of people.

Everyone should understand that for the linguist there are no big or small languages. For each people the language is not only a means of communication, but also an embodiment of national and cultural values. Nevertheless, when we have to decide which of the world's languages to study, we take into consideration the differences in the social and functional status of each language.

When we consider English, we have to keep in mind the fact that the English language is spoken by more native speakers than any other language. English is native or the first language for most population of Great Britain, USA, Canada, Australia, New Zealand. Besides, there are many areas, former British colonies where English is not a native language, but a second language with official status in education and administration, and for communication between speakers of other languages. If we take into account the important factor of speakers of English as a foreign language, it is most widely spread of the world's languages. A quarter of the world currently speaks English. That is one and a half bullion people, two-thirds of whom speak it as a foreign language.

English is one of the five official languages of the UNO (alongside of French, Russian, Spanish and Chinese). It is the working language during the meetings of the General Assembly and Security Council of the UNO. English has rapidly become the first language of business, science and popular culture. Three-quarters of the world's mail is in English. So are four of five e-mails and most of what you find on the Internet.

No wonder that so many people in various countries spare no efforts to acquire English for communication. In a recent survey, 69% of Europeans said they thought everyone should speak English. More than half of them already do. For most it is not a question of choice but of necessity. Higher schools students and postgraduates are trained to have a good knowledge of English, to read and use professional literature in their practical activity.

Technical English is often said to be more difficult to understand. At first sight this may seem true. There are a number of reasons why technical writing is rather difficult. It concerns first of all its vocabulary. The scientific and technical progress has enriched the vocabulary with a great deal of new words, new meanings and new word-combinations. Scientists and technologists also use many ordinary, everyday words to denote new terminological meanings. Each branch of science and technology has its own vocabulary (terminology). Many of them are formed on the basis of Greek or Latin words and are often international. Some technical words, borrowed from everyday English, sometimes cause much greater difficulty than terminology. In addition to terms, a text on some special problem usually contains so-called learned words.

As to grammatical patterns and models, they are the same as in everyday English. There is, certainly, a difference in the frequency with which certain grammatical forms occur. Scientific and technical writing is usually about things, matter, natural processes, and it is impersonal in style. The Passive Voice of verb forms, the constructions Subject and Complex Object are frequently used.

Simple sentences are rarely used, for isolated facts or events are seldom dealt with by the engineer. He has to show what the connection is, not only what happens, but also how it happens, when it happens, why it happens, and what is being affected.

The style of most texts, besides being impersonal, is also very concise. It is because the author-scientist is writing primarily for other scientists.

In order to master technical English the learner must first acquire a thorough knowledge of everyday literary English with its grammar, vocabulary and rules of word formation. Then it will be easy to learn, step by step, the peculiarities of

technical English. But understanding and translation of scientific and technical literature requires an additional training connected with knowledge of specific terminology.

2.1 Reading comprehension. Answer the following questions to the text.

1. Why is the importance of foreign languages knowledge constantly growing in modern world?
2. Is it possible to calculate the exact number of languages?
3. Can language be considered as the most important part of cultural identity?
4. What determines the status of any language in the world?
5. Why has the English language gained the status of the language of international communication?
6. What makes the English technical language understanding and writing rather difficult?
7. What are the peculiarities of most technical texts style?
8. What can be recommended to a learner to master technical English?

3 VOCABULARY

3. 1 Match the following word pairs from the text given above to make word partnerships.

1. native	a) values
2. cultural	b) language
3. special	c) status
4. social	d) problem
5. recent	e) activity
6. practical	f) survey
7. natural	g) distribution
8. numerical	h) processes
9. word	i) knowledge
10. thorough	j) formation

1-…; 2-…; 3-…; 4-…; 5-…; 6-…; 7-…; 8-…; 9-…; 10-…

3. 2 Fill in the correct word derived from the words in brackets.

Strategies for Successful English Language Learning

Research in the field of language indicates that there are many things you can do to become a 1) ……(success) learner. Some people may have special abilities linguistically, but most of us can 'learn to learn' language 2) …….. (effective). 3) …… (curious) about language and culture, 4)……..... (day) study, and the 5) ……. (commit) to use English in every possible situation while in an English-speaking environment are very 6) ……. (importance) conditions for success.

7) …… (motivate) and attitude play a 8) …… (significance) role in successful language 9) …… (learn). Listed here are some 10) …… (use) hints to encourage success in your new experiences. Combined with the expert 11) …… (assist) of 12) …… (knowledge) instructors and 13) …… (rely) intensive English programmes, attention to these ideas will help you gain focus in your studies so that you can learn English more 14) …… (effective).

- Be clear and 15) …… (reality) about your goals. Be sure to select an intensive English programme which accommodates your language goals.
- Be realistic about the 16) …… (long) of time it takes to learn a language.
- Be aware of your 17) …… (learn) style.
- Learn something about 'language learning'. Do not be afraid of a language or afraid of 18) …… (make) errors. Learn from these mistakes.
- Take responsibility for your own learning. Participate 19) …… (active) in your programme. Look for opportunities to use your new language in any of many new environments. Be willing to make mistakes and learn from these mistakes. Focus on your goals, your study habits, and your 20) …… (will) to 'learn to learn'. Enjoy the process! Find inside yourself the reasons

you want to learn, and determine the ways to evaluate your success for yourself.

3. 3 Complete the statements with the following words.

bilingual	***grammar***	***accent***
foreign	***slang***	***native***
	dialects	

1. Musical people find it easy to develop a good …… .

2. Extroverts find it easy to communicate in their …… language and so often find it easy to learn to speak a …… language fluently.

3. Flexible people can adapt to different …… .

4. …… people are the people who know two languages.

5. Learners of languages should make an effort to learn everyday expressions and even …… .

6. Organised and logical people find it easy to learn …… rules.

4 LANGUAGE REVIEW

4.1 Match the sentences in the Present Simple with the correct description.

1. Skill comes with practice.	a) repeated or habitual actions
2. He kicks the ball and passes it to Hill.	b) general truths or laws of nature
3. The plane to London takes off at 6:50 am.	c) permanent situations or states
4. She regularly participates in scientific conferences.	d) timetables and programmes (future meaning)
5. He works for one of the leading electric engineering companies.	e) subordinate clauses of time and condition
6. If they have any problems with new equipment, they will get in touch with us.	f) state verbs describing a state rather than an action (verbs of perception, senses, some other verbs)
7. The cargo weighs 50 kg.	g) sports commentary, review, narration
8. I suppose their decision is right.	h) facts

1- …; 2 - …; 3 - …; 4 - …; 5 - …; 6 - …; 7 - …; 8- …

4.2 Jane introduces Claude to Manfred in London. Complete the dialogue by putting each of the verbs in brackets into the correct form of the present simple. Reproduce the dialogue in groups of 3.

Jane: Claude, 1) …… (you/know) Manfred? Manfred 2) ……(be) from Essen, but we met at the conference in Leeds last year. He 3) ……. (know) a lot about your company's operation.

Claude: Really! Well I 4) ……(be) very pleased to meet you, Manfred.

Manfred: Pleased to meet you too, Claude.

Claude: So, what exactly 5) ……. (you/do)?

Manfred: I 6) …….. (work) for a German electric power and natural gas public utility company. Our company 7) …….. (contribute) electricity and gas to more than 20 million electricity customers and 10 million gas customers, principally in Europe.

Claude: Oh, so you 8) …….. (be) pretty big?

Manfred: Yes, RWE 9) …… (be) the second largest electricity producer in Germany. We 10) ……. (have) a number of subsidiaries and 11) …….. (employ) more than 70,000 people. My job 12) …….. (involve) studying market trends and dealing with permanent customers.

Claude: Oh, that 12) …… (be) a lot of responsibility.

Manfred: Well, yes. And what about you?

Claude: I 13) ……..(work) for Électricité de France which 14) …… (be) one of the world's largest producers of electricity. EDF 15) …….. (operate) a diverse portfolio of 120,000+ megawatts of generation capacity in Europe, Latin America, Asia, the Middle-East and Africa.

Manfred: Oh, really? And 16) ……. (you/often/come) to London?

Claude: Yes, quite often. My company 17) …… (have) an office here.

It 18) …….. (not/take) long to get here now, if you travel by Eurostar. Could I give you my card?

Manfred: Oh, yes. And I'll give you mine.

4.3 Place the adverbs in the box on the scale from the most to the least frequent and then add them to each sentence so that it is true for you.

almost always, rarely, often, seldom, hardly ever, usually frequently, never, always, occasionally, almost never

100% ***50%*** ***0%***

sometimes

1. I drive to the academy.
2. I get home late.
3. I feel bored with my study.
4. I find time to relax and enjoy myself.
5. I have arguments with my relatives.
6. I get acquainted with new people while I am travelling.
7. I go out on weekdays.
8. I chat to people online.
9. My computer crashes.
10. My friends go clubbing at weekends.
11. We read scientific literature.
12. We participate in students conferences.

4.4 Supply appropriate personal pronoun.

1. The cargo has arrived. … was delivered this morning.
2. When the sales manager comes in, tell … I phoned.
3. If you see Ann, please give … my regards.
4. They got in touch with us when … were developing a new installation.
5. It wasn't his idea, it was …. . I was the first who suggested these changes.
6. He is more experienced than … am, but not as creative as … .
7. We bought new equipment, but we really don't need … .
8. E-mails have become a real nuisance. I receive dozens of … every day.
9. These are my duties and what are … ? What are you responsible for?

10. It has been an excellent course. I've enjoyed … very much.

5 SKILLS

Work in pairs. Student A, look at the information below. Student B, look at the information on page 93 (Communication Activities).

Interview each other to complete the profiles. Prepare the questions that you will need in order to complete the profiles.

Name: Maxwell K. Smith	**Name:** Luis Menga
Age: 35	**Age:** _____
Nationality: American	**Nationality:** _____
Marital status: married	**Marital status:** _____
Salary: $48,000 per annum	**Salary:** _____
Company: Columbia Heights	**Company:** _____
Present position: Electrical Engineer	**Present position:**_____
	_____
Background:	**Background:** _____
University of Illinois, Champaign, IL	_____
Master's in Electrical Engineering	_____
Technology (May 2002)	_____
	_____
University of Minnesota, Minneapolis,	_____
Bachelor of Science in Electrical	_____
Engineering (May 1998)	_____
	_____
Present responsibilities:	**Present responsibilities:** _____
• Prepare electrical drawings and specifications.	_____
• Manage project schedules and budgets, and obtain permits for operations.	_____
	_____
• Make engineering calculations	_____

in connection with field and office assignments. • Investigate problems and recommend solutions. • Ensure compliance with safety requirements and standards procedures. • Prepare requests for proposals and evaluate bids. • Estimate cash flow projections. • Perform highly specialized design, research, and analysis on a project-by-project basis and advise on code compliance.	_____ _____ _____ _____ _____ _____ _____ _____

UNIT 2

1 LEAD-IN

In groups of four conduct a survey asking you classmates about their career choice. Complete the chart below, put the answers of different groups together and prepare the whole statistics.

	Student 1	**Student 2**	**Student 3**	**Student 4**
Why did you decide to enter Kharkiv National Academy of Municipal Economy?				
Who recommended you this higher education establishment or encouraged your choice?				
What do you know about the modes of study, courses provided and degrees granted?				
Why did you give your preference to the Power Supply and City Lighting department?				
What are your future career plans?				

2 READING

TEXT 1

KHARKIV NATIONAL ACADEMY OF MUNICIPAL ECONOMY

Kharkiv National Academy of Municipal Economy is a modern scientific and educational complex training specialists for different fields of municipal economy: municipal construction, electric transport, electric and energy supply, water and gas supply, municipal enterprises management, urban ecology, hospitality and tourism. It offers a wide range of undergraduate and postgraduate programmes. They lead to a variety of awards including postgraduate diplomas, Bachelor and Master degrees, Candidates and Doctors of Sciences on the basis of higher education.

More than 16,000 students study at the academy, 300 students are citizens of 30 countries of the world. The branches of academy successfully operate in Greece and Israel. Academy has close scientific and business contacts with higher education establishments, scientific and research institutions from 11 countries of the world, among which are France, Germany, Finland, the USA, Great Britain, Sweden, Netherlands, Israel, etc. The students are trained at 11 departments:

- Town Planning and Development
- Economics and Entrepreneurship
- Management
- Urban Engineering Ecology
- Power Supply and City Lighting
- City Electric Transport
- Correspondence department
- Foreign Students department
- Postgraduate and Distant Learning department
- Upgrading Skills and Retraining department
- Preparatory department

The academy is recognized nationally for the diversity of subjects and the quality of teaching. Its staff enumerates 500 teachers, 70 Professors and Doctors of Sciences, more than 300 PhD lecturers. 8 world-standard schools, headed by Doctors of Sciences, Professors, Candidates of Sciences, and PhD lecturers, successfully function at the academy. 11 branch scientific and research laboratories, namely "Megapolis Centre", engineering centre of phyto-technologies, the Laboratory of Academic Scientific and Research Complex (ASRC), have gained the international reputation.

The academy is accommodated in 6 modern well-equipped premises. At the disposal of students are 6 hostels, the library with its stock of 882,000 volumes, a sports centre offering an extensive range of indoor and outdoor activities, dining halls and cafes. There is a lively Students' Union with numerable societies covering a wide range of interests.

According to the level of training the academy graduates get the diplomas of Bachelor, Specialist and Master Degrees. The students' training is carried out according to the academic curriculum and programmes approved by the Ministry of Education and Science of Ukraine. The academic year starts on September, 1. The course of study lasts 5 years. After acquiring Master Degree the students can continue their education taking a three-year post-graduate course.

2.1 Reading comprehension. Answer the following questions to the text.

1. What fields of national economy does Kharkiv National Academy of Municipal Economy train specialists for?
2. How many students are currently enrolled?
3. What programmes of training does the academy provide?
4. Is there any possibility for foreign students to take academy courses?
5. What departments are the students trained at?
6. What scientific and branch laboratories have gained the international reputation?
7. What is the academy recognized nationally for?
8. What facilities does the academy possess to provide effective learning?

9. Does the academy provide a post-graduate cause?

10. What diplomas do the students get according to the level of training?

TEXT 2

FIRST EUROPEAN UNIVERSITIES

‘A university should be a place of light, of liberty and of learning.’

Benjamin Disraeli

A university is an institution of higher education and research, which grants academic degrees in a variety of subjects. A university is a corporation that provides both undergraduate education and postgraduate education. The word university is derived from the Latin *universitas magistrorum et scholarium*, roughly meaning ‘community of teachers and scholars.’ The original Latin word referred to degree-granting institutions of learning in Western Europe where this form of legal organization was prevalent, and from where the institution spread around the world.

Prior to their formal establishment, many medieval universities were run for hundreds of years as Christian cathedral schools or monastic schools, in which monks and nuns taught classes; evidence of these immediate forerunners of the later university at many places dates back to the 6th century AD.

The first universities with formally established guilds in Europe were the University of Bologna (1088), the University of Paris (1150), later associated with the Sorbonne), the University of Oxford (1167), the University of Palencia (1208), the University of Cambridge (1209), the University of Salamanca (1218), the University of Montpellier (1220), the University of Padua (1222), the University of Naples Federico II (1224), the University of Toulouse (1229).

The University of Bologna (Italian: Alma Mater Studiorum Università di Bologna, UNIBO) is the oldest continually operating university in the world, the word 'universitas' being first used by this institution at its foundation. The true date of its founding is uncertain, but believed by most accounts to have been 1088. Since 2000, the University’s motto has been Alma mater studiorum (Latin for ‘fostering mother of studies’). The university is historically notable for its teaching of canon and civil law. Until modern times, the only degree granted at that university was the

doctorate. The University counts about 100,000 students in its 23 faculties. It has a number of branch centers in Italy and a branch center abroad in Buenos Aires.

The University of Paris was founded in the mid 12th century, and officially recognized as a university probably between 1160 and 1170. After many changes, it ceased to exist in 1970, and 13 autonomous universities were created from it. The university is often referred to as the Sorbonne or La Sorbonne after the collegiate institution founded about 1257 by Robert de Sorbon. The university had four faculties: Arts, Medicine, Law, and Theology. The Faculty of Arts was the lowest in rank, but also the largest as students had to graduate there to be admitted to one of the higher faculties. The students were divided into four nations according to language or regional origin: France, Normandy, Picardy, and England. The faculty and nation system of the University of Paris (along with that of the University of Bologna) became the model for all later medieval universities. Under the governance of the Church, students wore robes and shaved the tops of their heads in tonsure, to signify they were under the protection of the church. Students operated according to the rules and laws of the Church and were not subject to the king's laws or courts. Students were often very young, entering the school at age 13 or 14 and staying for 6 to 12 years.

The University of Oxford is a university located in Oxford, United Kingdom. It is the second oldest surviving university in the world and the oldest university in the English-speaking world. Although the exact date of foundation remains unclear, there is evidence of teaching there as far back as the 11th century. The University grew rapidly from 1167 when Henry II banned English students from attending the University of Paris. After disputes between students and Oxford townsfolk in 1209, some academics fled north-east to Cambridge, where they established what became the University of Cambridge. The two 'ancient universities' have many common features and are often jointly referred to as Oxbridge. In addition to cultural and practical associations as a historic part of British society, the two universities have a long history of rivalry with each other. Most undergraduate teaching at Oxford is organized around weekly essay-based tutorials at self-governing colleges and halls,

supported by lectures and laboratory classes organized by University faculties and departments. League tables consistently list Oxford as one of the UK's best universities, and Oxford consistently ranks in the world's top 10.

In Europe, young men proceeded to university when they had completed their study of the *trivium*–the preparatory arts of grammar, rhetoric and dialectic or logic– and the *quadrivium*: arithmetic, geometry, music, and astronomy.

The end of the medieval period marked the beginning of the transformation of universities that would eventually result in the modern research university. Many external influences, such as eras of humanism, Enlightenment, Reformation and Revolution, shaped research universities during their development.

By the 18th century, universities published their own research journals and by the 19th century, the German and the French university models had arisen. The German, or Humboldtian model, was conceived by Wilhelm von Humboldt and based on Friedrich Schleiermacher's liberal ideas pertaining to the importance of freedom, seminars, and laboratories in universities. The French university model involved strict discipline and control over every aspect of the university.

Until the 19th century, religion played a significant role in university curriculum; however, the role of religion in research universities decreased in the 19th century, and by the end of the 19th century, the German university model had spread around the world. Universities concentrated on science in the 19th and 20th centuries and became increasingly accessible to the masses. In Britain the move from industrial revolution to modernity saw the arrival of new civic universities with an emphasis on science and engineering. The British also established universities worldwide, and higher education became available to the masses not only in Europe. In a general sense, the basic structure and aims of universities have remained constant over the years.

Although each institution is organized differently, nearly all universities have a board of trustees; a president, chancellor, or rector; at least one vice president, vice-chancellor, or vice-rector; and deans of various divisions. Universities are generally divided into a number of academic departments, schools or faculties. Public

university systems are ruled over by government-run higher education boards. They review financial requests and budget proposals and then allocate funds for each university in the system. They also approve new programs of instruction and cancel or make changes in existing programs. In addition, they plan for the further coordinated growth and development of the various institutions of higher education in the state or country. However, many public universities in the world have a considerable degree of financial, research and pedagogical autonomy. Private universities are privately funded and generally have a broader independence from state policies.

Despite the variable policies, the universities are usually among the foremost research and advanced training providers in every society. Most universities not only offer courses in subjects ranging from the natural sciences, engineering, architecture or medicine, to sports sciences, social sciences, law or humanities, they also offer many amenities to their student population including a variety of places to eat, banks, bookshops, print shops, job centers, and bars. In addition, universities have a range of facilities like libraries, sports centers, students' unions, computer labs, and research laboratories. In a number of countries, major classic universities usually have their own botanical gardens, astronomical observatories, business incubators and university hospitals.

2.2 Reading comprehension. Mark the statements as true (T) or false (F).

1. A university is an institution of higher education and research granting academic degrees and providing undergraduate as well as postgraduate education. _____
2. The word *university* is of Latin origin. _____
3. The university as the institution spread around the world from Eastern Europe. _____
4. In many medieval universities classes were taught by monks and nuns. _____
5. The University of Oxford is considered to be the oldest continually

operating university in the world. _____

6. The University of Bologna was founded in 1088. _____

7. The University of Bologna is historically notable for its teaching of medicine. _____

8. Until modern times, The University of Bologna granted only the doctorate degree. _____

9. The University of Paris was founded in the mid 14th century. _____

10. 13 autonomous universities were created from the University of Paris after it ceased to exist in 1970. _____

11. The University of Paris is often referred to as the Sorbonne because it was founded by Robert de Sorbon. _____

12. The robes students wore at The University of Paris and shaved tops of heads signified that the students were under the protection of the king. _____

13. The University of Cambridge is considered to be the oldest university in the English-speaking world. _____

14. The University of Oxford and the University of Cambridge are often jointly referred as Oxbridge because they have many common features and a long history. _____

15. The two most ancient universities in Britain have a long history of rivalry with each other. _____

16. At the end of the medieval period the universities began to transform into the modern research universities. _____

17. Universities managed to publish their own research journals only after the 18th century. _____

18. By the 19th century the German and the French university models had appeared. _____

19. The French university model was based on the ideas pertaining to the importance of freedom, seminars, and laboratories in universities. _____

20. The German university model involved strict discipline and control over

_____

every aspect of the university.

21. By the end of the 20th century, the German university model had spread around the world. _____

22. In the 19th and 20th centuries universities concentrated on science and became increasingly accessible to the masses. _____

23. Generally, the basic structure and aims of universities have greatly changed over the years. _____

24. Many public universities in the world have a considerable degree of financial, research and pedagogical autonomy. _____

25. The universities usually take the lead in research and advanced training in every society. _____

3 VOCABULARY

3. 1 Match these words and phrases with the definitions.

1. graduate	a) document showing that someone has successfully completed a course of study or passed an examination
2. language laboratory	b) an amount of money that is given to someone by an educational organization to help pay for their education
3. lecture	c) someone who is studying at a university to get a master's degree or a PhD
4. scholarship	d) a spoken or written test of knowledge, especially an important one
5. canteen	e) the person in charge of colleges, universities
6. diploma	f) a room in a school or college

	where you can learn to speak a foreign language by listening to tapes and recording your own voice
7. undergraduate	g) a large dining hall in a university
8. exam	h) someone who has completed a university degree, especially a first degree
9. faculty	i) a long talk on a particular subject that someone gives to a group of people, especially to students in a university
10.postgraduate	j) a class at a university or college for a small group of students and a teacher to study or discuss a particular subject
11.rector	k) a block of flats where students live
12.hostel	l) a student at college or university, who is working for their first degree
13.seminar	m) a long piece of written research done for a higher university degree, especially a PhD
14.dissertation	n) a department or group of related departments within a university

1-…; 2-…; 3-…; 4-…; 5-…; 6-…; 7-…; 8-…; 9-…; 10-…;
11-…; 12-…; 13-…; 14-…

3. 2 Name the steps of the hierarchy ladder at the university or academy. Use the words from the box.

dean, assistant lecturer, head of department, vice-rector, *associate professor, assistant professor,* *subdean, professor, rector*

rector_

_____

_____

_____

_____

_____

_____

_____

3. 3 Use the following collocations to explain what you find in you academy life *exiting, boring, depressing, confusing, annoying, embarrassing, worrying, amusing, interesting, motivating, encouraging.*

to enter the academy	to cheat	to correct mistakes
to pass entrance exams	to crib at exams	to write essays,
to be a first-year student	to graduate with honours	to do homework
to lag behind	to get a degree	to make reports
to keep pace	to defend a diploma	to attend lectures
to miss classes	to conduct research	to work on thesis
to hand in	to fail the exam	to retake examinations
to get a bad mark	to work in the library	to take notes
to pass an examination session	to take a postgraduate course	to participate in research projects
to lose a student membership card	to come late to classes	to learn a foreign language

3.4 Choose the right words to fit into the following paragraph.

women foreign schools languages universities countries

Student Migrations and the Feminisation of European Universities

The end of the nineteenth century saw the emergence of two new categories of students in Western 1) …….. : foreigners and women. This trend manifested

itself mainly in 2) …….. with a dense, well-developed university network such as Switzerland, France, Germany, the Austro-Hungarian Empire and Belgium. The Italian, Spanish, English, Scottish, Dutch or Scandinavian universities were less affected by this wave, and the number of 3) …….. students they hosted remained relatively slight given, among other things, the fact that their 4) …… of instruction were rarely studied in the 5) …….. of the other European countries. The presence of 6) …….. was also less important in these universities and mainly consisted of natives of each country concerned.

4 LANGUAGE REVIEW

4.1 Write the plurals of the following words and use them in the sentences of your own.

company	-	city	-
person	-	phenomenon	-
man	-	idea	-
father-in-law	-	CEO	-
fax	-	photo	-
passer-by	-	child	-
crisis	-	parking space	-
breakdown	-	woman	-

4.2 Choose the correct option.

1. There *isn't/aren't much/many* light in the hall.
2. The police *has/have* a lot of witnesses.
3. There *was/were* too *much/many* people in the exhibition hall.
4. *That/Those* lighting installations *was/were* very efficient.
5. Mathematics *is/are* his favourite subject at the academy.
6. *This/these* data *was/were* obtained yesterday.
7. The team *is/are* all working hard on a new project.
8. My luggage *is/are* in the car already.
9. The staff *is/are* all taking a training course.
10. It is a well known fact that no news *is/are* good news.
11. The money on the desk *is/are* for your business trip expenses.

4.3. Rewrite the sentences in the plural making necessary changes.

1. She has an important task. _____
2. There's an urgent problem left. _____
3. The man is going to the head office. _____
4. This copy is damaged. _____
5. She often gets in touch with customers. _____
6. That draft has a terrible mistake. _____

4.4. Complete the sentences with *a* or *an*, *the* or no article.

1. His father works as … electrician.
2. What do you usually order in your factory canteen for … lunch?
3. Where is … USB drive I lent you yesterday?
4. Our car does 150 miles … hour.
5. … smog is a problem in … big cities.
6. They get to the office by … bus.
7. I'm very interested in … education. It is important to receive … good education.
8. Is this … first time you have won the grant?
9. … life is very difficult for … unemployed these days.
10. I saw … advertisement this morning. I think it must have been … same one that I saw last week.
11. She lost … important document and was fired.
12. … telephone was invented by Alexander Bell.
13. He plays … violin pretty well.
14. This is … excellent chance to get a good job.
15. She took … six-month computer course.
16. Do you always tell … truth?
17. Thank you, Anna, … idea you suggested was really valuable.

4.5 Underline the correct word in the dialogue.

Linda: Michael, have you got 1) *a/some* moment for a chat?

Michael: Of course, go ahead.

Linda: There 2) *is/are* 3) *a/some* important work that we need to do over the next few months. It should be 4) *an/some* interesting job, and I think you're the best 5) *person/people* to do it.

Michael: Do you really think so?

Linda: Yes. We are going to install 6*) a/some* new wind turbines to increase the capacity.

Michael: Uh, I see …

Linda: And, as you know, we haven't got 7) *many/much* space at our present site. Well, we think it's 8) *an/some* ideal opportunity to expand.

Michael: Yes, I absolutely agree.

Linda: We'd like you to do 9) *a/some* research on the whole idea, and then write 10) *a/some* report on whether to go ahead or not. Are you interested?

Michael: Well, actually, I haven't got 11) *much/many* experience of this kind of thing.

Linda: I know, but there really 12) *isn't/aren't* anyone else here who is suitable. And we need to make 13) *a progress/progress* on this as quickly as possible.

Michael: Um, right, but there 14) *is/are* 15) *many/much* 16) *information/ informations* to collect.

Linda: Well, with this new responsibility we are going to review your salary.

Michael: Well, it sounds like 17) *a/an* interesting idea. I'll try to cope with it.

5 SKILLS

Prepare and present the information about one of the world famous universities. Try to complete the table below with the facts that can be helpful in your presentation.

University name	
Location	
The date of foundation	
Key facts in the history of the establishment	
Notable alumni and professors	
World ranking	
Educational courses provided	
Degree granted	
Students life	

UNIT 3

1 LEAD-IN

1. What do you know about the Bologna Process? Why is it called so? What is its purpose?
2. How many countries signed the Bologna declaration? Where and when was it signed?
3. What are the goals of the European Higher Education Area creation?
4. What are the major reforms foreseen by the Bologna Process?
5. When was the credit transfer system ECTS implemented in Ukraine? Is it successful? What does it provide?
6. Would you like to take some educational course abroad in the future? Why?

2 READING

‘ Knowledge is a city, to the building of which every human being brought a stone.’

Ralph W. Emerson

‘Knowledge is power’

Francis Bacon

UKRAINE'S NATIONAL HIGHER EDUCATION SYSTEM

In Ukraine, as in other developed countries, higher education is considered to be one of the main human values. Ukraine has inherited from the past a well-developed and multifunctional system of higher education. The dynamics, as a characteristic trait of the current civilization, increasing social role of an individual, humanization and democratization of society, intellectualization of labour, fast change in technologies and equipment worldwide require the creation of such a system which will allow Ukraine to become the ever-educated nation. The establishment of the national higher education system is based on the new legislative and methodological grounds. It provides for the entirely new qualitative level of expert's training, increase in academic and professional mobility of graduates, greater openness, democratic principles of teaching and raising the youth, accession of Ukraine's higher education system into the world community.

Higher education in Ukraine has a long and rich history. Its students, graduates and academics have long been known and appreciated worldwide. The pioneering research of scholars working in the country's higher education institutions and academies, such as Dmytro Mendeleyev, Mykola Zhukovsky, and Yeugeny Paton, are part of the universal history of scientific progress.

The first higher education institutions (HEIs) emerged in Ukraine during the late 16th and early 17th centuries. The first Ukrainian higher education institution was the Ostrozka School, or Ostrozkiy Greek-Slavic-Latin Collegium, similar to Western European higher education institutions of the time. Established in 1576 in the town of Ostrog, the Collegium was the first higher education institution in the Eastern Slavic territories. The oldest university was the Kyiv Mohyla Academy, first established in 1632 and in 1694 officially recognized by the government of Imperial Russia as a higher education institution. Among the oldest is also the Lviv University, founded in 1661. More higher education institutions were set up in the 19th century, beginning with universities in Kharkiv (1805), Kiev (1834), Odessa (1865), and Chernivtsi (1875) and a number of professional higher education institutions, e.g.:

Nizhyn Historical and Philological Institute (originally established as the Gymnasium of Higher Sciences in 1805), a Veterinary Institute (1873) and a Technological Institute (1885) in Kharkiv, a Polytechnic Institute in Kiev (1898) and a Higher Mining School (1899) in Katerynoslav. Rapid growth followed in the Soviet period. By 1988 a number of higher education institutions increased to 146 with over 850,000 students. Most HEIs established after 1990 are those owned by private organizations.

The higher education consists of higher educational establishments, scientific and methodological facilities under federal and municipal governments and self-governing bodies in charge of education. The higher education structure includes also the post-graduate and Ph. D. Programs and self-education. The higher education includes two major educational levels, namely, basic higher education and full higher education. The educational level is trait of higher education by the level of gained quality which provides comprehensive development of an individual and which will do to get an appropriate qualification. The legislation sets the following educational and qualification levels - junior specialist, bachelor, specialist, master, as well as scientific degrees of candidate of sciences (assistant professor) and doctor of sciences (Ph. D.). Educational and qualification level is trait of higher education by the level of gained qualities which will enable this individual to perform the appropriate occupational tasks or responsibilities at a certain qualification level. Senior scientific researcher, assistant professor and professor are the applied degrees.

According to the HEIs status the following 4 levels of accreditation are set:

- Level I - vocational schools and other HEIs equaled to them which teach junior specialists by using educational and professional programs (EPPs);
- Level II - colleges, other HEIs equaled to them which teach bachelors, and if need be junior specialists, by using EPPs;
- Level III - institutes, conservatories, academies, universities which teach bachelors and specialists, as well as junior specialists if need be, by using EPPs;

- Level IV - institutes, conservatories, academies, universities which teach bachelors, masters and specialists if need be, by using EPPs.

Currently, Ukrainian higher educational system comprises 327 technical vocational schools, 216 vocational schools, 117 colleges, 149 institutes: 2 conservatories, 48 academies and 81 universities.

Ukraine nationals study in their national languages, while foreign students have a choice of either the native language or English. This is subject to the availability of the program in English. Foreign students that opt to study in Ukrainian or Russian language undergoes a one year preparatory language course, during which they undergo a study of language and preparatory courses related to their future discipline. On graduation, they receive an additional certificate of proficiency for the language, which compensates for the additional year. Students taught in the English language skip this preparatory stage, but study the language as an independent course in the course of their academic program.

An academic year runs from 1st of September to 31st of June. This is split into two semesters having a brief two weeks winter break in January, and a long vacation from 1st of July to 31st of August.

Since the mid-90s, Ukraine has taken steps to reform its education frameworks in consistence with the Bologna Process. It is named after the place it was proposed, the University of Bologna in the Italian city of Bologna, with the signing in 1999 of the Bologna declaration by Ministers of Education from 29 European countries. The overarching aim of the Bologna Process is to create a European Higher Education Area (EHEA) based on international cooperation and academic exchange that is attractive to European students and staff as well as to students and staff from other parts of the world. The envisaged European Higher Education Area will facilitate mobility of students, graduates and higher education staff; prepare students for their future careers and for life as active citizens in democratic societies, and support their personal development; offer broad access to high-quality higher education, based on democratic principles and academic freedom.

HEIs' graduates are given state standard diplomas after they complete education under respective EPPs based on the results of state attestation. The following educational and qualification levels granted to the experts exist in Ukrainian system of higher education: junior specialist, bachelor, specialist and master.

Normative periods of training under different educational and qualification levels are set as following:

3 years for junior specialist (on the basis of full comprehensive secondary education);

4 years for bachelor (on the basis of full comprehensive secondary education);

1 year for specialist (on the basis of first degree);

1 year for master (on the basis of first degree).

Ukraine's higher educational system fulfills important social functions creating intellectual potential of Ukraine as a new independent state entering the world community. Higher education supplies all spheres of national economy with qualified professionals and looks for the better ways of development and perfection.

2.1 Reading comprehension. Answer the following questions to the text.

1. How can the education system inherited by Ukraine from the past be described?
2. What does the modern Ukrainian system of education have to take into consideration and must be based on?
3. What famous Ukrainian scholars have been known and appreciated worldwide?
4. When did the first higher education institutions appear in Ukraine?
5. What is the oldest university in Ukraine which was officially recognized as a higher education institution?
6. What does the higher education system in Ukraine consist of?
7. What does the higher education structure include?
8. What are the major educational levels provided in Ukraine?
9. How many levels of accreditation exist in the country? What are they specified by?

10. What programme helps foreign students to cope with the demands of the learning process in Ukraine?
11. How long is the academic year?
12. What makes Ukraine implement some reforms in its education frameworks?

TEXT 2

HIGHER EDUCATION IN GREAT BRITAIN

All British universities are private institutions. Students have to pay fees and living costs, but every student may obtain a personal grant from local authorities. If the parents do not earn much money, their children will receive a full grant which will cover all the expenses. Students studying for first degrees are known as ‘undergraduates’. New undergraduates in some universities are called ‘fresher’. They have lectures and regular seminars.

After three or four years the students will take their finals. Those who pass examinations successfully are given the Bachelor’s degree: Bachelor of Arts for History or Bachelor of Science. The first postgraduate degree is Master of Arts, Master of Science. Doctor of Philosophy is the highest degree. It is given for some original research work which is an important contribution to knowledge. Open Days are a chance for applicants to see the university, meet students and ask questions. All this will help you decide whether you have made the right choice.

The most famous universities in Britain are Oxford and Cambridge. They are the two oldest English universities and they both have a long and eventful history of their own. Oxford and Cambridge are regarded as being academically superior to other universities and as giving special privilege and prestige. Cambridge University consists of a group of 32 independent colleges. The first students came to the city in 1209 and studied in the schools of the cathedral and monasteries.

Further education in Britain is for people over 16 taking courses at various levels up to the standard required for entry to higher education. The Open University offers degrees for people who do not have a formal education and qualifications, or

who are older. Students study at home and then post their works off to a tutor for marking. Most courses take six years and students get a number of credits for each year's work. The Open University was founded in 1969 and started its first course in 1971. About 120, 000 people have enrolled since then.

2.2 Reading comprehension. Answer the following questions to the text.

1. Why do British students have to pay fees and living costs?
2. How can local authorities support students?
3. Who are called 'freshers'?
4. When are the British students given the Bachelor's degree?
5. What are the grounds to giving the highest degree, Doctor of Philosophy?
6. What British universities are considered to be the oldest and given special privilege?
7. What educational system does the Open University provide?
8. Is taking courses of the Open University quite popular at present?

3 VOCABULARY

3. 1 Match the following word pairs from the above given texts to make word partnerships.

1. to complete / provide	a) a personal grant
2. to obtain	b) education
3. to undergo	c) mobility of students
4. to facilitate	d) a study of language
5. to give a state	e) examinations
6. to pass	f) standard diploma
7. to study	g) of proficiency
8. to receive a certificate	h) in one's national language
9. to prepare	i) courses
10. to take	j) for one's future career

1-…; 2-…; 3-…; 4-…; 5-…; 6-…; 7-…; 8-…; 9-…; 10-…

3.2 Complete the following chart.

noun (person)	noun(phenomenon)	verb	adjective
		inherit	
	establishment		
educator			
		emerge	
trainer			
	recognition		
applicant			
		provide	
	facilitation		

3.3 Choose the right words to fit into the following paragraph.

state religion undergraduates fees specific research colleges faiths

Higher Educational System in the USA

There are more than 3,500 colleges and universities in the United States. A college is usually for1) …….. , whereas a university is a collection of one or more 2) ……, plus a graduate school and various professional schools. Colleges mainly teach but universities, with their large numbers of graduate students, also place emphasis on 3) ……... .

The American Higher Educational System can be divided into the following categories:

- Public schools are funded by the 4) …….. and the local government of the area in which they are located. Community colleges grant associate degrees after two years of study. Students who plan to earn Bachelor's degrees can attend A. A. or A.S. degree programs which are designed to parallel the first two years of study in a four-year institution.

*2-year community college

*4-year state college

*Graduate university

*Some vocational schools

- Private schools are organized in the same manner as other colleges, but generally have 5) …….. much higher than those of the public schools. These schools are owned by private non-governmental individuals and boards of directors. Their funding is primarily from the tuition they charge and private contributions.

*2-year college

*4-year college

*Graduate University

- Religiously affiliated colleges and universities are all privately owned and operated. They are predominantly Christian, although some are Jewish, Islamic and other 6) …… . These institutions offer general coursework, but they also offer and sometimes require participation in 7) ……. courses. In general, one need not be a member of a particular church or religious group to attend a religiously affiliated college in the U.S., and enrollment in such an institution will not impinge on one's own religious practices.
- Proprietary Schools are usually operated by an individual or a corporate owner. These schools generally concentrate on 8) …….. academic programs such as computer programming, or specialized fields such as aviation, fashion design and so on.
- Technical and Vocational schools.

4. LANGUAGE REVIEW

4.1 Match the sentences in the Present Continuous with the correct description.

1. They are leaving for Manchester tomorrow morning.	a) actions happening around the moment of speaking

2. He is looking for a better job now.	b) actions happening at the moment of speaking
3. She is looking through the mail at the moment.	c) repeated actions with ‘always’ expressing annoyance or criticism
4. She is always interrupting me.	d) temporary situations
5. She is living at her sister until she rent a flat.	e) changing or developing situations
6. It is getting more and more difficult to find a well-paid job.	f) fixed arrangements in the near future

1-…; 2 - …; 3 - …; 4 - …; 5 - …; 6 - …

4.2 Fill in with Present Simple or Present Continuous. Then reproduce the dialogues in pairs.

1

Ann: Hi, Mum!

Mum: Hallo, Ann! Where 1)……(you/call) from?

Ann: I 2)……(be) at work at the moment. My boss 3) …… (have) a meeting with our permanent clients at the moment. He often 4)……(arrange) business meetings with clients on Tuesdays.

Mum: What about your college study?

Ann: I 5)……(do) fine. I 6)……(prepare) a course project on Electromagnetic Fields at the moment.

Mum: Well, why 7)……(you/phone)? Is there anything wrong?

Ann: No, I just want you to know that I 8)……(come) home next Saturday.

Mum: What time 9)……(your train/arrive) in Leeds?

Ann: It 10)……(leave) London at 12 o’clock and

11) …… (arrive) in Leeds at 3 o'clock.

Mum: See you on Saturday then.

2

John: 1)……(you/look) for someone?

Lucy: Yes, I 2)……(need) to speak to Bryan Smith but he isn't in his office. 3)……(you/know) where he is?

John: Oh, I'm sorry, he isn't here today. He 4)……(visit) our plant. He 5)……(try) to prepare a report on our occupational safety standards. I 6)……(think) he'll be back at her desk tomorrow. Perhaps I can help you?

Lucy: Oh, thanks. I 7)……(work) for BHW Ceramics. We 8)……(supply) electrical ceramic insulators to the transmission, distribution and railway industries.

John: Oh, yes.

Lucy: Well, Bryan Smith contacted us last week. You 9)……..(want) to place the order.

John: Yes, that's right.

Lucy: We 10)……..(help) businesses with all aspects of design for their requirements and 11)…….(guarantee) short delivery times. Bryan asked me to call in and give all the details on our products. I 12) …….(have) all our catalogues and pricelists with me.

John: Well, that sounds great. I'm sure Bryan would be really interested to see everything.

Lucy: Could you look trough the catalogues and prepare the documents to place the order?

John: Oh, I'm sorry, I 13) …….(not/know) exactly. You really need to speak to Bryan, he 14) …….(deal) with this order. I'll tell him to give you a ring tomorrow. What's the best time to call?

Lucy: I 15)……(meet) a client tomorrow morning … anytime

after 2. He can call me on my mobile. He 16)…… (have) my phone number.

4.3. Some state verbs have continuous tenses, but there is a difference in meaning. Choose the correct tense form.

1. I *see/am seeing* that the situation is out of control.
2. They can't talk to you, they *see/are seeing* their permanent clients.
3. Our Project Manager is Italian. He *comes/is coming* from Italy.
4. The representative of a consulting engineering firm *comes/is coming* tomorrow.
5. She *is /is being* very intolerant and nervous these days, because we can't cope with the urgent order.
6. You haven't said a word all morning. What *are you thinking/do you think* about?
7. I *think/am thinking* changes are inevitable.
8. They *weigh/are weighing* the cargo that has just been delivered.
9. The cargo is heavy. It *weighs/is weighing* a lot.
10. This uniform *fits/is fitting* me perfectly.
11. We *fit/are fitting* a new carpet in the hall.
12. They *appear/are appearing* to be working.
13. The new General Manager *appears/is appearing* in the office tonight.
14. The coffee *tastes/is tasting* really bitter.
15. They *taste/are tasting* our new brand of coffee.
16. She *has/is having* a lot of responsibilities as the chief of the department.
17. *Are you having/Do you have* a good time at the moment?

4.4 Use the definite article where necessary.

1. Have you ever gone skiing in … Alps?
2. Is … Everest the highest mountain in the world?
3. What is the capital of … Netherlands?
4. He graduated from … Yale University in 1997.
5. The house over there belongs to … Browns. They moved in last month.

6. … Nile is the second-longest river in the world.

7. When … UN was founded in 1945, it had 51 member states.

8. Europe, Asia, Africa, and Australia are in … Eastern Hemisphere.

9. … NATO was established in 1949.

10. Bunin was the first Russian to receive … Nobel Prize in Literature in 1933.

11. … Lake Baikal is the deepest freshwater lake in the world.

12. … Mont Blanc is the highest peak in … Alps

13. … Westminster Abbey is near … Parliament Square - at the top end of … Victoria Street

14. The delegation arrived at … Heathrow Airport yesterday.

15. … Hyde Park is very famous all over … world.

16. … Odeon Cinema is in … Green Street.

17. … Trafalgar Square is in … London.

5 SKILLS

You would like to take an Electrical Engineering course in the UK. You have surfed Internet looking for the options. Write a formal email to the authorities of the University of Dundee requesting the information about the course you are going to take: the mode, the price, the start date, duration, venue, students accommodation, etc. Use the information given on the university site.

The University of Dundee is one of the UK's leading universities, internationally recognised for its expertise across a range of disciplines including science, medicine, engineering and art. An established university, it has a progressive and dynamic outlook, constantly striving to build on its achievements: investing in excellent facilities, pushing the boundaries of research, and developing new ways of e-learning.

Electronic and Electrical Engineering BEng

Department of Electronic Engineering and Physics

Course description:

Year 1: Engineering mathematics; information technology; electricity optics and waves; mechanics and thermodynamics; electrical/electronic engineering project.

Year 2: Engineering mathematics; engineering design and communications; engineering software; analogue and digital electronic systems; electrical and mechanical systems; fundamentals of electronic devices.

Year 3: Analogue electronic circuits; digital electronic circuits; microelectronics; telecommunications; mathematical methods; computer engineering; electronic control; electrical power; communication skills.

Qualification: Undergraduate in Electronic and Electrical Engineering

(http://www.hotcourses.com/uk-courses/Electronic-and-Electrical-Engineering-BEng-courses/page_pls_user_course_details/16180339)

UNIT 4

1 LEAD-IN

1. How much status do engineering jobs have in Ukraine?
2. What qualifications do people need to work as electrical engineers?
3. What stimulated you to choose the profession of an electrical engineer?
4. What have you heard about job vacancies in your future profession?
5. Is your future profession rewarding? What do you like about it?
6. What are the biggest challenges in the job of an electrical engineer?
7. What have you heard about the popularity of this profession abroad?
8. Can you have some chance to get an international experience and work for some engineering company abroad when you graduate from the academy?
9. Choose some factors which were important when you chose the profession of an electrical engineer:

• have an excellent salary	• possibility to be involved in international projects

• have job security	• be able to carry out some research work
• possibility to work for respected companies	• have a lot of freedom at work
• have a job that can take abroad	• not have to work overtime

2 READING

TEXT 1

THE ENGINEERING PROFESSION

The engineering profession in some of its branches is one of the oldest recorded in history. An engineer is the person who implements scientific principles to bring theories to ground realities. He or she is proficient in mathematics and other sciences and continuously strives to discover, study new technologies to introduce advanced and innovative products or services for consumers. In the simpler terms, an engineer is a convergent thinker who uses the rules of mathematics and takes basic science information to solve problems and manufacture new products.

There are two broad divisions of engineering which cover practically all forms of engineering activity. These are research engineering and constructive or creative engineering. In the former division are included the work of the scientist, the work of the investigator and the work of the inventor; in the latter the work of those whose task is to assemble the knowledge gained in research and to use this knowledge in the creation of things of value to all the people.

Engineers influence different aspects of modern life, and it is likely that today you've already relied on the expertise of an engineer or engineers. Everything people use today has been designed and developed or manufactured by one or more engineers.

There are various types of engineers as well as their sub-types. The major areas where engineers specialize are mechanical, electrical, aerospace, marine, and civil engineering. And there are also other fields where more and more people are entering; these include software, electronics, nuclear, biomedical engineering, etc.

Electrical engineering is a field of engineering that generally deals with the study and application of electricity, electronics and electromagnetism. The field first became an identifiable occupation in the late nineteenth century after commercialization of the electric telegraph and electrical power supply. It now covers a range of subtopics including power, electronics, control systems, signal processing and telecommunications. Electrical engineers are responsible for developing electrical systems that may be consumer based (like MP3 players, iPods, digital cameras, DVD players, etc.), as well as power-based like airline navigation system or the electricity grids in cities. An electrical engineer has many options to go for in specialization, from computer networks and robotics to wireless communications and even medical imaging.

An engineering education has changed to adjust to the needs of society, the evolution must continue and change is needed to address the needs of the 21st century. The major trends in engineering education can be summarized by the following classification:

- 19th century and the first half of the 20th century - professional engineer;
- second half of the 20th century - scientific engineer;
- the 21st century - entrepreneurial/enterprising engineer.

It cannot be said definitely what the engineering profession will look like hundred years from now. The intense discussions that are currently taking place among leaders of the profession and educators suggest that innovation will be a central theme. It is evident that the entrepreneurial engineer of the twenty-first century:

- Knows everything — can find information about anything quickly and knows how to evaluate and use the information. The entrepreneurial engineer has the ability to transform information into knowledge.
- Can do anything — understands the engineering basics to the degree that he or she can quickly assess what needs to be done, can acquire the tools needed, and can use these tools proficiently.

- Works with anybody anywhere — has the communication skills, team skills, and understanding of global and current issues necessary to work effectively with other people.
- Imagines and can make the imagination a reality — has the entrepreneurial spirit, the imagination, and the managerial skills to identify needs, come up with new solutions, and see them through.

It is unthinkable that society can remain competitive and can sustain the present standard of living without a large number of people with the knowledge and know-how to innovate. It needs to educate engineers that understand the societal context of their work, have an understanding of the human dimension around the globe, coupled with innovation and creativity.

2.1 Reading comprehension. Answer the following questions to the text.

1. What is considered to be the major role of an engineer?
2. What knowledge does an engineer have to possess to perform his or her professional functions effectively?
3. What are the divisions of engineering? What does each of the divisions comprise?
4. What are the major areas engineers are specialized in?
5. What does electrical engineering deal with?
6. What periods in engineering education can be distinguished according to the character of the professional demands?
7. What are the predictions concerning the challenges of the engineer of the twenty-first century?

TEXT 2

GETTING THE ELECTRICAL ENGINEERING PROFESSION ABROAD

Electrical engineering is a field of engineering that generally deals with the study and application of electricity, electronics and electromagnetism. Electrical engineering may include electronic engineering. Where a distinction is made, usually outside of the United States, electrical engineering is considered to deal with the problems associated with large-scale electrical systems such as power transmission

and motor control, whereas electronic engineering deals with the study of small-scale electronic systems including computers and integrated circuits. Alternatively, electrical engineers are usually concerned with using electricity to transmit energy, while electronic engineers are concerned with using electricity to transmit information.

Electrical engineers typically possess an academic degree with a major in electrical engineering. The length of study for such a degree is usually four or five years and the completed degree may be designated as a Bachelor of Engineering, Bachelor of Science, Bachelor of Technology or Bachelor of Applied Science depending upon the university. The degree generally includes units covering physics, mathematics, computer science, project management and specific topics in electrical engineering. Initially such topics cover most, if not all, of the sub-disciplines of electrical engineering. Students then choose to specialize in one or more sub-disciplines towards the end of the degree.

Some electrical engineers also choose to pursue a postgraduate degree such as a Master of Engineering/Master of Science (M.Eng./M.Sc.), a Master of Engineering Management, a Doctor of Philosophy (Ph.D.) in Engineering, an Engineering Doctorate (Eng.D.), or an Engineer's degree. The Master and Engineer's degree may consist of either research, coursework or a mixture of the two. The Doctor of Philosophy and Engineering Doctorate degrees consist of a significant research component and are often viewed as the entry point to academia. In the United Kingdom and various other European countries, the Master of Engineering is often considered an undergraduate degree of slightly longer duration than the Bachelor of Engineering.

From the Global Positioning System to electric power generation, electrical engineers have contributed to the development of a wide range of technologies. They design, develop, test and supervise the deployment of electrical systems and electronic devices. For example, they may work on the design of telecommunication

systems, the operation of electric power stations, the lighting and wiring of buildings, the design of household appliances or the electrical control of industrial machinery.

Fundamental to the discipline are the sciences of physics and mathematics as these help to obtain both a qualitative and quantitative description of how such systems will work. Today most engineering work involves the use of computers and it is commonplace to use computer-aided design programs when designing electrical systems. Nevertheless, the ability to sketch ideas is still invaluable for quickly communicating with others.

Although most electrical engineers will understand basic circuit theory (that is the interactions of elements such as resistors, capacitors, diodes, transistors and inductors in a circuit), the theories employed by engineers generally depend upon the work they do. For example, quantum mechanics and solid state physics might be relevant to an engineer working on VLSI (the design of integrated circuits), but are largely irrelevant to engineers working with macroscopic electrical systems. Even circuit theory may not be relevant to a person designing telecommunication systems that use off-the-shelf components. Perhaps the most important technical skills for electrical engineers are reflected in university programs, which emphasize strong numerical skills, computer literacy and the ability to understand the technical language and concepts that relate to electrical engineering.

For many engineers, technical work accounts for only a fraction of the work they do. A lot of time may also be spent on tasks such as discussing proposals with clients, preparing budgets and determining project schedules. Many senior engineers manage a team of technicians or other engineers and for this reason project management skills are important. Most engineering projects involve some form of documentation and strong written communication skills are therefore very important.

2.2 Reading comprehension. Answer the following questions to the text.

1. Does electrical engineering distinguish from the field of electronic engineering in most countries abroad?

2. What degree do electrical engineers typically obtain?

3. What is the period of study for such a degree?

4. What are the major courses to get a degree in electrical engineering?

5. What other degrees can be designated in case of pursuing a postgraduate degree?

6. What are the most important technical skills for electrical engineers?

7. What other skills do electrical engineers have to possess to provide effective team work as well as successful communication with clients?

3 VOCABULARY

3. 1 Match the left and the right side (Text 1) to make word combinations. Make up sentences of your own with them.

1. to implement	a) for customers
2. to introduce products	b) scientific principles
3. to bring theories	c) of engineering activity
4. to cover all forms	d) to ground realities
5. to use the knowledge	e) of modern life
6. to influence different aspects	f) in the creation of things
7. to adjust	g) the present standards of living
8. to sustain	h) to the needs of society

1-…; 2-…; 3-…; 4-…; 5-…; 6-…; 7-…; 8-…

3.2 Match the following word pairs from Text 2 to make word partnerships. Make up sentences of your own with them.

1.	a field	a)	of electrical systems
2.	the deployment	b)	of engineering
3.	the application	c)	of technologies
4.	the study	d)	of electricity
5.	the development	e)	of electronic systems

1-…; 2-…; 3-…; 4-…; 5-…

3.3 Complete the following chart.

noun (person)	noun(phenomenon)	verb	adjective
		discover	
	implementation		
			productive
consumer			
	information		
investigator			
		design	
	competition		
innovator			
		pursue	
			managerial

3.4 Which word or expression from the text can be used to mean the following:

1.	a source of power, such as fuel, used for driving machines, providing heat, etc.	a)	energise
2.	to supply power or energy to a machine, an atom, etc.	b)	energy
3.	the activity of applying scientific knowledge to the design, building and control of machines, roads, bridges, etc.	c)	engineer
4.	a person whose job involves designing and building engines, machines, roads, bridges, etc.	d)	engineering
5.	connected with electricity; using or producing electricity	e)	electrician
6.	a person whose job is to connect, repair, etc. electrical equipment	f)	electric(al)
7.	a form of energy from charged elementary	g)	electrical

	particles		engineering
8.	the design and building of machines and systems that are used or produce electricity	h)	electricity

1-…; 2-…; 3-…; 4-…; 5-…; 6-…; 7-…; 8-…

3.5 Choose the right words to fit into the following paragraph.

careers electricity team products schedules
reality demand needs in charge appliances

The world today would not be able to function without 1)……, so the 2) …… for electrical engineers is constantly on the rise.

Electrical engineers are 3) …… of designing and developing electrical systems and 4) ……. . The products and systems they work on are incredibly varied, and be as large scale as huge factories down to household goods and 5) ……. . Like all areas of engineering, their job essentially involves turning ideas into 6) ……. .

Electrical engineers works with transformers, circuits, electrical parts and wiring to create products that rely on electricity to function. They are often given project specifications from their employees they have to work for, usually in a 7) …… with other engineers and related people.

They have many roles within projects, including creators, planners, designers and managers. They are involved in projects from start to finish and oversee every part of the process. Some of the processes that electrical engineers may be involved in include: anticipating and identifying customers 8) …… and translating them into design specifications; building prototypes; identifying and monitoring milestones along the projects development; supervising construction plans; designing and drawing electrical systems; selecting appropriate materials; and developing maintenance 9) ……. They are kept very busy and have a great diversity in their 10) ……. .

4 LANGUAGE REVIEW

4.1 Put each of the verbs in brackets into the Past Simple.

One of the most famous inventors of all time, Thomas Alva Edison 1) …… (exert) a tremendous influence on modern life, 2) …… (contribute) inventions such as the incandescent light bulb, the phonograph, and the motion picture camera, as well as 3) …… (improve) the telegraph and telephone. In his 84 years, he 4) …… (acquire) an astounding 1,093 patents. Aside from being an inventor, Edison also 5) …… (manage) to become a successful manufacturer and businessman.

Thomas Alva Edison 6) …… (be) born to Sam Edison and Nancy Elliott on February 11, 1847, in Milan, Ohio. Edison 7) …… (be) the youngest of seven children, four of whom 8) …… (survive) to adulthood. To seek a better fortune, Sam Edison 9) …… (move) the family to Port Huron, Michigan, in 1854, where he 10) …… (work) in the lumber business.

Edison 11) …… (be) a poor student. When a schoolmaster 12) …….. (call) Edison 'addled', his furious mother 13) ……... (take) him out of the school and 14) …… (proceed) to teach him at home. Edison 15) …… (say) many years later, 'My mother 16) …… (be) the making of me. She 17) …… (be) so true, so sure of me, and I 18) ……(feel) I 19) ……(have) someone to live for, someone I must not disappoint.' At an early age, he 20) ……. (show) a fascination for mechanical things and for chemical experiments.

In 1859, Edison 21) …… (take) a job selling newspapers and candy on the Grand Trunk Railroad to Detroit. In the baggage car, he 22) …… (set up) a laboratory for his chemistry experiments and a printing press. An accidental fire 23) …….. (force) him to stop his experiments on board. Around the age of twelve, Edison 24) …….. (lose) almost all his hearing. He 25) …….. (not do) let his disability discourage him, however, and often 26) ……..…..

(treat) it as an asset, since it 27) …….. (make) it easier for him to concentrate on his experiments and research.

4.2 Choose the correct answer.

1. I was sure that I … the door to my office last night.

A used to lock **B** locked **C** was used to locking

2. Our company … belong to a French multinational.

A is used to **B** used to **C** got used

3. ‘ Do you like working in this department?’

‘ Well, I … to it yet, but it’s okay.’

A am not used **B** wasn’t used **C** am used

4. I … on the left because I’ve lived in Britain for a long time.

A used to drive **B** am getting used to driving **C** am used to driving

5. I … to work every day, but these days I usually get to my office by bus.

A am used to driving **B** used to drive **C** got used to driving

6. I wouldn’t like to share an office. I … in my own office.

A am used to working **B** am getting used to working **C** am used to work

7. I … a lot on business, but nowadays I have to.

A used to travel **B** didn't use to travel **C** was used to travelling

4.3 Read the following sentences correctly.

1. On April 24, 1877 Charles F. Brush was issued U.S. Patent No. 189,997 for his arc lighting system.

2. Although a flashlight is a relatively simple device, its invention did not occur until the late 19th century because it depended upon the earlier invention of the electric battery and electric light bulb.

3. Some special services have their own short numbers (e.g.1-1-9, 9-1-1, 0-0-0, 9-9-9, 1-1-1, and 1-1-2 being the Emergency Services numbers for China, Japan, South Korea, Taiwan and Sri Lanka; Canada and the United States; Australia; the United Kingdom; New Zealand; and the European Union, respectively.)

4. I’m afraid I can’t come. I have another meeting scheduled for 2:30 p.m.

5. About 3/5 of workers are young people.

6. The meeting started at 8:30 a.m. in Room 20.

7. The stock deal, which involved $4.5 billion, paid a 12.5% dividend.

8. The vote was 126 in favor of the action and only 16 opposed.

9. The assignment was to read chapter 6, pages 31-39.

10. Take bus 5 to get to the park.

11. The meeting is scheduled for the 30th of June.

12. The Bulls won the final game by a score of 114 to 106.

13. She has been living on 20 High Street for almost 5 years.

14. During the 1980s she lived in San Francisco.

5 SKILLS

5.1 Read the following top ten qualities of an engineer and discuss with your partner which of them are of special demand for a successful electrical engineer. Interview each other clarifying what qualities he or she possesses to start his or her career in Electrical Engineering.

Top 10 Qualities of an Engineer

- **Strong Analytical Aptitude:**

  A great engineer has excellent analytical skills and is continually examining things and thinking of ways to help things work better. They are naturally inquisitive.

- **Shows an Attention to Detail:**

  A great engineer pays meticulous attention to detail. The slightest error can cause an entire structure to fail, so every detail must be reviewed thoroughly during the course of completing a project.

- **Has Excellent Communication Skills:**

A great engineer has great communication skills. They can translate complex technical lingo into plain English and also communicate verbally with clients and other engineers working together on a project.

- **Takes Part in Continuing Education:**

A great engineer stays on top of developments in the industry. Changes in technology happen rapidly, and the most successful engineers keep abreast of new research and ideas.

- **Is Creative:**

A great engineer is creative and can think of new and innovative ways to develop new systems and make existing things work more efficiently.

- **Shows an Ability to Think Logically:**

A great engineer has top-notch logical skills. They are able to make sense of complex systems and understand how things work and how problems arise.

- **Is Mathematically Inclined:**

A great engineer has excellent math skills. Engineering is an intricate science that involves complex calculations of varying difficulty.

- **Has Good Problem Solving Skills:**

A great engineer has sharp problem solving skills. An engineer is frequently called upon solely to address problems, and they must be able to figure out where the problem stems from and quickly develop a solution.

- **Is a Team Player:**

A great engineer understands that they are part of a larger team working together to make one project come together successfully, and therefore, must work well as part of that team.

- **Has Excellent Technical Knowledge:**

A great engineer has a vast amount of technical knowledge. They understand a variety of computer programs and other systems that are commonly used during an engineering project.

5.2 Read the following engineering jokes. Do you know any other jokes?

- How many Engineering Directors does it take to change a light bulb?

- Just one. He holds the light bulb still and expects the world to revolve around him.

Arguing with an Engineer . . . is a lot like wrestling in the mud with a pig. After a few hours, you realize that he likes it.

UNIT 5

1 LEAD-IN

1. What does it mean when it is stressed that computers have become more user friendly?
2. How much do you use computer technology to help with your learning? Do you do the following things: often, sometimes or never? Why?
    - do exercises on CD-Rom
    - surf the Internet to find professional information
    - watch English-speaking films or TV programmes
    - listen to songs in English
    - email people in English
    - access English websites or take part in online chat in English
    - listen to English radio
    - type reports, course projects
    - prepare presentations

2 READING

THE NEED FOR COMPUTER LITERACY IN MODERN SOCIETY

An outstanding characteristic of modern society is the powerful flow of knowledge and information in different fields of human activities. Information is often called the lifeblood of modern civilization. It plays an ever increasing part in everyday life, management of business, etc. The present-day information explosion must be properly dealt with. To handle the information flow properly and instantly, to help specialists find immediately an information and data needed urgently a multiple of machines have been invented. Computers have fundamentally altered the way we live and work. They have, in particular, transformed our ability to deal with information and data. We are now moving rapidly toward where—for all practical purposes—we can process information infinitely fast, store infinite amount of data, and transmit data instantaneously. As a result of the emergence of the Internet, knowledge has been "communalized." Everybody has access to information about anything and—perhaps equally importantly— knowledge is no longer "owned" by the experts. Computers have also empowered the average man and woman to create products that previously required large corporations with significant resources. They are ideal for high-volume computing tasks such as the computation and analysis of statistical and mathematical data as well as scientific and engineering calculations.

Computers have become part of our everyday lives. They have an effect on almost everything you do. When you buy groceries at a supermarket, a computer is used with laser and barcode technology to scan the price of each item and present a total. Barcoding items (clothes, food and books) require a computer to generate the barcode labels and maintain the inventory. Most television advertisements and many films use graphics produced by a computer. In hospitals, beside terminals connected to the hospital's main equipment, computers allow doctors to type in orders for blood tests and to schedule operations. Banks use computers to look after their customers'

money. In libraries and bookshops, computers can help you to find the book you want as quickly as possible.

The Internet has revolutionized the computer and communications world like nothing before. The Internet is at once a world-wide broadcasting capability, a mechanism for information dissemination, and a medium for collaboration and interaction between individuals and their computers without regard for geographic location.

Electronic Learning or e-Learning is reinventing the way people learn. The desk, the chalkboard, the paper and pencil, and the knowledge-giver no longer dominate the classroom. The Internet is the biggest influence. When delivered via the Internet, the vendors' curricula can personalize learning. Any student can use the computer as a medium through which the access to information and resources manifest itself as the supernatural agency.

The computer field continues to experience huge growth. Computer networking, computer mail, and electronic publishing are just a few of the applications that have grown in recent years. Advances in technologies continue to produce cheaper and more powerful computers offering the promise that in the near future, computers or terminals will reside in most, if not all homes, offices, and schools.

Therefore, the pressure on those who still are unfamiliar with computers and their use is ever greater. So, almost everyone will need to become familiar with data processing and computing to a greater or lesser extent. No matter whether we need it in the home, office, school, college or factory, it will be almost as commonplace to use a computer as it is to drive a car. It is absolutely necessary for every active member of modern society to be able to use the computer system in data (information) processing and management.

2.1 Reading comprehension. Answer the following questions to the text.

1. What is the most outstanding characteristic of modern society?

2. What helps significantly to cope with the information explosion and handle the information flow?

3. What is the result of the Internet emergence?

4. What parts of our everyday lives have computers changed?

5. In what way the process of computerization has changed the system of education?

6. Is the computer literacy becoming a necessity?

3 VOCABULARY

3. 1 Match the left and the right side to make word combinations.

1.	characteristic	a)	of data
2.	management	b)	of modern society
3.	infinite amount	c)	of business
4.	the emergence	d)	of statistical data
5.	analysis	e)	to information and resources
6.	part	f)	of the Internet
7.	mechanism	g)	of our everyday lives
8.	access	h)	for information dissemination

1-…; 2-…; 3-…; 4-…; 5-…; 6-…; 7-…; 8-…

3.2 Read the passage guessing the ending of some words.

Why Is Computer Literacy Important?

Computer literacy refers to having the skills and the (1) **k** _ _ _ _ _ _ _ _ to use computers competently. (2) **C** _ _ _ _ _ _ _ literacy also implies that one is comfortable with using computer software and other applications that are related to the computer. Another (3) **i** _ _ _ _ _ _ _ _ part of being computer literate is to know how the computer functions and (4) **o** _ _ _ _ _ _ _. Basic computer skills are considered very important assets of people in developed (5) **c** _ _ _ _ _ _ _ _.

First world and developing countries consider computer (6) **l** _ _ _ _ _ _ _ to be a very vital skill to acquire. Employers desire their (7) **w** _ _ _ _ _ _ to possess basic

computer skills because (8) **t** _ _ _ _ companies are becoming more technologically advanced. The computers help them to run their (9) **c** _ _ _ _ _ _ _ _ efficiently and cost effectively.

With the influence and essentiality of becoming computer literate individuals, (10) **p** _ _ _ _ _ now regard that living without computer (11) **s** _ _ _ _ _ would now be unimaginable. People rely much on computers on the amount of (12) **w** _ _ _ they can accomplish**.**

4 LANGUAGE REVIEW

4.1 Complete the sentences by putting the verbs in brackets into either the Past Simple or Past Continuous.

1. She …… (try) to explain her proposal, when the supervisor …… (interrupt) her.
2. When he …… (finish) reading the manual, he …… (give) it to me.
3. Everyone …… (wait) for the meeting to begin when the manager …… (call) to say that he was stuck in the traffic jam.
4. When the electrician …… (arrive), we …… (explain) him what had happened.
5. What …… (you/do) when the industrial accident happened?
6. We …… (look through) the report when the lights went out.
7. Yesterday morning John …… (read) the design specifications and technical drawings while Mike …… (estimate) the costs of the project.
8. When he …… (join) the company five years ago, he …… (be) responsible for supervising the manufacture of electrical equipment.
9. They …… (type) the report with the results of the experiment when the system …… (fail).
10. The electric energy industry in the US …… (be) under a restructuring driven by changes in federal and state laws in the 1990s.

4.2 Underline the best continuation of the conversations.

1. A: What was he doing this morning?
   B: He *calculated/was calculating* the project expenditures to avoid cost overruns.
2. A: How did David spend his weekend?
   B: He *was going/went* to Paris on business.
3. A: I didn't see you in the office last week.
   B: I *worked/was working* at home trying to present the results of our experiment.
4. A: What did they do when the electric transmission lines were damaged?
   B: They immediately *got in touch/were getting* in touch with the utility company.
5. A: What were you doing when we were discussing what caused the power system outage?
   B: I *tried/was trying* to find the solution.

5 SKILLS

Over the past years, computer technology has started to change many aspects of our life. One of these is the approach to teaching and learning. Many people believe that the Internet will greatly enhance students' lives but the others think that costs will outweigh the benefits.

Speculate about the problem in groups of 4-5 using the prompt ideas below. Support your opinion with the examples from your personal experience. Give the ideas of how to use the positive sides in the most effective ways and how to reduce the negative ones.

pros	cons
• *convenience* (Computer technology has made life much easier and convenient. One of the biggest conveniences is how many tasks and/or needs that formerly required trips to be made can now be accomplished from the comforts of home.)	• *disadvantages to students' health* (Most activities can be done right from the comforts of a chair or other stationary position, students are moving less. Long hours at the computer can negatively influence students' sight.)
• *saves time*	• *restrict the opportunity to meet and*

(Computer technology has the capabilities to take over the mundane chores that are time consuming.)	*socialize with other students* (Students communicate chatting on the Internet, staying at home.)
• *fast and efficient* (Things can be adjusted, fixed or taken care of on a moment's notice as long as a secure Internet connection is available.)	• *plagiarism* (Sometimes students use ideas of other people and present them as their own ones.)
• *communication* (No longer are time zones, physical distance or long distance expenses barriers to maintaining contact with family, friends and colleagues. With communication tools such as e-mail, instant messaging, Skype, chat and video conferencing, there are many different choices available to keep people connected and in touch, often at very little cost.)	• *the level of lecturer/student contact that students and lecturers are used to may be reduced* (University lecturers are now able to put their lectures on the Internet for students to read and so the importance of attending face to face lectures has been reduced.)
• *a valuable source of information and the best means of transmitting this information*	• *lecturers may be less available for consultation* (If the lecturers are able to put their lectures on the Internet, they may choose to do this from home and so be less available for consultation.)

MODULE 1.2

UNIT 6

1 LEAD-IN

1. Can Ukraine be considered to be an energy-rich country?

2. Is there a balance between domestic primary energy supply and demand in Ukraine?

3. Do you know what one-third of Ukraine's primary energy is sourced from?

4. What kind of power plays the most significant role for the country’s economy in electricity production?

5. What alternative sources of energy are needed to start in Ukraine a realistic clean energy programme for future generations?

2 READING

ENERGY SAVING POTENTIAL IN UKRAINE
Current Energy Efficiency Status of National Economy

High energy content of Ukraine's GDP is a result of significant technological lag in the majority of economy sectors compared to the developed countries, unsatisfactory structure of the national economy, negative impact of the shadow sector, specifically, import-export operations, which objectively limit the competitive power of national production and is burdensome for the economy, especially concerning its foreign energy dependence. In contrast to the industrially developed countries where energy saving is an element of economic and environmental expediency, in case of Ukraine it is an issue of survival under the market conditions and entrance to European and world market. This requires addressing the problem of well-balanced solvent demand both on the internal and external markets, as well as diversification of fuel and energy imports.

Low energy efficiency has become one of the key factors that have given rise to critical situations in the Ukrainian economy. The energy component in the cost structure of manufactured goods had an almost three-fold increase in the first half of 1990s, reaching 42% of total material expenses associated with output of products. It was not until 1997-1999 that energy efficiency of the economy began to improve as a result of measures taken at the state level. While GDP energy content grew by 38.6% in 1990-1996, it had been decreasing significantly since 2000, and it was for the first time in the Ukrainian history that GDP growth was achieved at the same time with reduction in consumption of primary fuel and energy resources.

However, it should be noted that the GDP energy content reduction rates slowed down in 2002 due to negative changes in the energy content reduction trend with regard to the gross value added in the most energy-intensive sectors of the economy – metallurgy, machine-building, chemical and petrochemical, as well as

housing and communal services sector, these changes brought about by inadmissibly high depreciation (65-70%) of fixed assets and corresponding increase in per unit cost of fuel and energy resources for a number of important product types.

Energy saving is one of the crucial factors for the energy strategy of Ukraine. It determines the effective operation of the national economy. At present, building an efficient energy-saving state regulation system is the main factor reducing the energy content of goods (services) in all sectors of economy. This will make possible, in the first place, improving the energy final consumption structure, specifically, by further extension and intensification of electrification in all economic sectors by replacing critical fuels and, at the same time, enhancing production efficiency.

Energy security is an integral part of economic and national security, an essential condition for a country's existence and development. The present day concept of energy security suggests achieving the status when the economy and social sector of the state have a reliable, stable, economically efficient and environmentally safe supply of energy resources, and creating conditions for formulation and implementation of policy protecting national interests in the energy sector.

The main objectives with regard to ensuring Ukraine's energy security are:

- reliable supply of energy resources to meet the needs of national economy and the population to the objectively necessary extent;
- reliable and efficient operation and development of sectors and companies of the Fuel-and-Energy Complex;
- social orientated energy policy regarding to the population and FEC workers energy supply;
- abating detrimental impact of FEC facilities operations on the environment and the population in accordance with internal and international requirements.

The issue of energy facilities ownership is important for the country's energy security. Nuclear power plants, hydropower plants, underground gas storage facilities, backbone and interstate power lines, oil and gas pipelines and pipeline dispatch control must remain in the state ownership. Energy sector management and

regulation should be improved to create proper conditions and rules for FEC facilities operation, fair competition should be introduced at energy markets and, on this basis, balance the interests of the state, energy companies and consumers of energy resources.

2.1 Reading comprehension. Mark the statements as true (T) or false (F).

1. Ukraine has made the greatest technological progress in the majority of economy sectors compared to other developed countries. _____
2. Energy saving in Ukraine is an issue of survival under the market conditions. _____
3. Production of energy in Ukraine is characterized as low effective. _____
4. Energy saving factor determines the effective operation of the national economy. _____
5. The existence and development of Ukraine largely depends on its energy security. _____
6. Country's energy security must be assured by the state energy facilities ownership. _____

3 VOCABULARY

3. 1 Match the following word pairs from the text to make word partnerships.

1.	product	a)	operations
2.	energy	b)	sector
3.	reduction	c)	efficiency
4.	production	d)	rates
5.	shadow	e)	facilities
6.	import-export	f)	types

1-…; 2-…; 3-…; 4-…; 5-…; 6-…

3.2 There are many word combinations with *energy* in the text.

energy	~ companies	~ resources
	~ consumer	~ saving
	~ content	~ sector
	~ efficiency	~ security
	~ import	~ strategy
	~ market	~ supply

Below are the examples of other word combinations with *energy*. Fit them into the following sentences.

energy	~ user	~ consumption	~ equipment	~ requirements
		~ conservation	~ minister	~ sources
		~ economy	~ production	~ technology

1. What is the most efficient and environmentally aware type of **e**_____ **p**_____ for home use and are people aware of the benefits both environmentally and long cost savings?
2. The company produces alternative **e** _____ **e** _____ that converts energy from moving water into electricity.
3. **E**_____ **t**_____ is an interdisciplinary engineering science having to do with the efficient, safe, environmentally friendly and economical extraction, conversion, transportation, storage and use of energy,
4. **E**_____ **M**_____ Charles Hendry told MPs governments had spent £2.2 billion supporting wind power over eight years. (MPs governments-членыпарламента)
5. The appetite for oil and other **e** _____ **s** _____ is growing dramatically, with worldwide **e**_____ **c** _____ projected to increase by 36 percent by 2035.
6. **E**_____ **c** _____ supports the eco friendly lifestyle by providing energy, which saves your money and at the same time saves the earth.
7. The major **e**_____ **u** _____in most buildings is the heating, ventilating, and air conditioning (HVAC) system.
8. The world **e** _____ **e** _____ has the largest influence on the decisions that people and governments make.

3.3 Choose the right words to fit into the following paragraph.

investments levels companies prices times potential

Energy Efficiency Facts

Energy intensity in Ukraine is around three 1) ……. higher than in the EU. This means that on average, Ukrainian 2) ……. use three times as much energy to produce the same output as companies in the European Union. Needless to say, the 3) …….for energy efficiency in Ukrainian companies is huge, even with today's Ukrainian energy prices, which are low compared to EU 4) …….. However, the market for energy efficiency investments in Ukraine is still in its infancy. But with increasing energy 5) ……. and WTO accession, Ukrainian companies can only maintain their competitiveness on the world market through lowering their energy consumption by using every opportunity for profitable energy efficiency 6)…….. .

4 LANGUAGE REVIEW

4.1 Match the sentences in the Present Perfect with the correct description.

1. They have changed some electric installations.	a) an action which happened at an unstated time in the past; the exact time is not important, so it is not mentioned
2. They have received three faxes this morning.	b) an action which has recently finished and which result is visible in the present
3. I have just finished the report.	c) an action which started in the past and continuous up to the present
4. They have known him most of their working life.	d) an action which has happened within a specific time period, which is not over at the moment of speaking, such as this morning/week/month, etc.
5. She has never been to Paris.	e) an action which has just finished

1- …; 2 - …; 3 - …; 4 - …; 5 - …

4.2 Complete the sentences by putting the verbs in brackets into either the Present Simple, Present Perfect or Past Simple.

1. When …… (join) ESC (Electrical Supply Corporation)?

2. That's the best presentation on alternative energy sources I ……. (hear).

3. They are going to employ a new secretary. Ann always …… (make) mistakes in costs estimation reports.

4. We …… (not have) any problem when we introduces new system of equipment control last summer.

5. Scientists …… (make) some fundamental discoveries in the 18th century.

6. Last week I …… (be) very busy and I …… (not/have) the time to do a lot in the household.

7. Rexel …… (operate) in 36 countries, in three main geographic zones (North America, Europe, and Asia-Pacific) and ……(hold) about 10% share of the global market of distributed electrical supplies.

8. For more than half a century, GE…… (be) an industry leader in combined cycle technology and today …… (lead) the industry in combined cycle installations around the world.

9. – ….. you ever …… (be) to New York?
– New York? No I …… (never/ be) there. Have you?
– Yes. In fact I …… (just /come back) from there. I'm doing some consultancy work there and I …… (spend) at least six weeks there last year.

10. Electricity supply activities …… (include) the generation, transmission and distribution of electricity and the on-selling of electricity via power distribution systems operated by others.

4.3 Complete the dialogue by putting the verbs in brackets into the correct form of the Past Simple or Present Perfect. Reproduce the dialogue in pairs.

Mark: Hi, Matt. I 1) …… (not see) you for ages!

Matt: Hi. I'm sorry. I 2) …… (not be) in touch with anyone recently. I 3) …… (be) really busy.

Mark: What have you been up to then?

Matt: Well, you know I 4) …… (leave) my job in … in March so that I 5) …… (can) go freelance as an art lighting designer.

Mark: Yes, I remember, you 6) …… (talk) a lot about that last year. How is it going?

Matt: Well, it 7) …… (be) really difficult so far. It's much harder work than I 8) …… (imagine). 9) …… (you/ever/be) self-employed?

Mark: No, never, but I 10) …… (often/think) about it. So, why 11) …… (be) so difficult?

Matt: Well, at the beginning 12) …… (have) a couple of good clients. And since then I 13) …… (have) a lot of interest from different companies, but none of them 14) …… (become) regular customers.

Mark: 15) …… (try) to put up a website with examples of your work?

Matt: Yes, I 16) …… (just/develop) it. Would you mind to have a look? I'd like to know your opinion.

4.4 Choose the correct option.

1. – Where's Jane?
   – She *has been/ has gone* out. She should be back in an hour.
2. – John looks happy. He seems to have finalized the deal.
   – Yes, he *has been/ has gone* to the customer and they have signed the contract.
3. – The office is empty.
   – Yes, everybody *has been/ has gone* home
4. – It's great to see you again with us! Where *have* you *been/gone*?
   – I've just returned from our subsidiary.

5. – Where is our Financial Director?

– He was here earlier, but I think he *has been/ has gone* to the bank now.

5 SKILLS

Look through the information about Rexel, one of the leading energy companies. Prepare the presentation of the company history using the facts and events mentioned below.

Through its distribution networks for professional customers in the industrial, residential, and commercial sectors, Rexel provides innovative electrical solutions and equipment to improve comfort, performance, and energy efficiency.

The Group is the preferred partner of all professionals in the electrical chain from electricians to key industrial accounts and equipment manufacturers. For all its customers, Rexel offers a unique range of electrical supplies in terms of its breadth and availability.

Rexel operates in 36 countries with 2,200 branches, a distribution network of more than 40 banners and 28,000 employees. For over 40 years, Rexel has been growing by anticipating the needs of its markets and customers. It remains one step ahead with its offer of innovative solutions of electrical supplies for professionals in the industrial, residential, and commercial sectors.

Milestones

1967 : creation in France of CDME (Compagnie de Distribution de Matériel Electrique)

1980 : initial expansion in Europe

1983 : listed on the Second Marché of the Paris stock exchange

1986 : entry into the US market

1990 : acquired by the PPR group

1993 : CDME changes its name to Rexel

1998 : initial operations in Australia and New Zealand

1999 : expansion into Eastern Europe

2000 : operations start in China and Canada

2005 : 100% of the share capital of Rexel is acquired by a consortium of investors led by Clayton Dubilier & Rice, Eurazeo and Merrill Lynch Global Private Equity.

2006 : Rexel acquires Gexpro (formerly GE Supply) in USA

2007 : Initial public offering of Rexel (Euronext Paris, SBF 120 index)

2008 : acquisition of the major European assets of Hagemeyer (No. 3 worldwide)

2009 : launch of LEAD 2011, a dynamic company strategy to explore new growth avenues (new energies, large infrastructure projects)

2011 : Entry into the Indian and Brazilian market

UNIT 7

1 LEAD-IN

1. Why does the energy policy development play the crucial role in any country economy?
2. What determines the main priorities in a country energy policy?
3. What facilities are considered to be the main electricity producers in Ukraine?
4. Is there a necessity to develop nuclear power in Ukraine? What is the attitude of scientists, politicians and government officials to this issue?
5. Do any energy sectors in Ukraine demand restructuring?
6. How can the introduction of energy efficient technologies influence energy efficiency and safety?

2 READING

THE MAIN PRIORITIES IN ENERGY POLICY OF UKRAINE

To define the main priorities in energy policy of Ukraine, it is necessary to take into consideration the following facts:

- The energy system of Ukraine is interconnected with 7 power grids of neighboring states by 75 power transmission power lines.
- Technically feasible amount of electricity interchange: 50 billion kWh
- Burshtyn island operates synchronously with UCTE and has potential to increase electricity export.
- The main electricity producers: 14 thermal, 8 hydropower and 4 nuclear power stations with total capacity of 52 million kW.
- TPP and CHP – 57.8%, NPP – 26.6%, HPP and HPSPP – 9.1%, other sources – 6.5%.
- Natural uranium reserves in Ukraine allow meeting the demand of domestic nuclear power sector for over 100 years.
- Coal is the only energy carrier, which reserves are sufficient to cover the needs of the national economy for over 300 years.

In this respect among the main priorities of Ukrainian energy policy presented at the European energy forum were: to strengthen energy security of Ukraine and the EU member-countries; to ensure higher level of energy efficiency and energy saving of the national economy; to develop nuclear industry and nuclear power sector, to ensure safe NPPs operation; to reconstruct and modernize thermal power sector, to reduce its negative impact on environment; to increase regulating generation capacities; to ensure higher level of consumption of renewable energy sources; to develop oil and gas sectors, to build up strategic oil stocks, to increase natural gas reserves; to restructure the coal industry; to develop internal energy market; to eliminate subsidies and price distortions in energy sector.

One of the main tasks of electricity sector is the parallel operation with the European power grid. It is going to be achieved by the reconstruction and

modernization of TPPs units, the improvement of energy supply reliability in Ukrainian regions, the construction of new high voltage transmission power lines, the development of nuclear industry and nuclear power sector and the enhancement of NPPs operational safety.

To provide energy efficiency and safety it is necessary to introduce energy efficient technologies, equipment and materials; to stimulate implementation of energy saving measures; to improve energy accounting and control systems; to ensure higher consumption of alternative and renewable energy sources and to modernize thermal power utility sector.

2.1 Reading comprehension. Mark the statements as true (T) or false (F).

1. The energy system of Ukraine exists absolutely independently. _____
2. Burshtyn island operation can contribute to electricity export increase. _____
3. There are more main hydropower stations in Ukraine which are the main electricity producers. _____
4. Coal reserves are sufficient to satisfy the needs of the national economy for over 300 years. _____
5. To meet the country needs it is necessary to provide higher level of energy efficiency and energy saving of the national economy. _____
6. It is better to stop developing nuclear industry and nuclear power sector as it can be of great danger to people lives. _____
7. One of the main priorities is to reduce energy production negative impact on environment. _____
8. The focus must be made on higher level of renewable energy sources consumption. _____
9. The coal industry needn't any restructuring. _____
10. The electricity sector must provide the parallel operation with the European power grid. _____
11. Energy efficient technologies introduction is one of the ways to provide energy efficiency and safety _____

3 VOCABULARY

3. 1 Use the correct form of the words in brackets to complete the sentences.

1. Oil use …….. (***contributes/integrates/implements***) to pollution and to the release of global-warming gases.

2. Many of our human …….. (***activities/industries/economies***) have an impact on the Earth's biosphere - our home.

3. We live in a global …….. (***economy/policy/country***), where many energy markets are interconnected.

4. Over the next 25 years, the overall …….. (***demand/sector/resource***) for electric power is expected to jump by 50 percent.

5. We must utilize all of our energy …….. (***sources/supply/markets***) – coal, nuclear, oil, gas, hydro and renewable sources.

4 LANGUAGE REVIEW

4.1 Match the sentences in the Present Perfect Continuous with the correct description.

1. He is absolutely exhausted. He has been working all day long.	a) emphasis on duration
2. Who has been reading my business papers?	b) an action which started in the past and continuous up to the present
3. How long have you been learning English?	c) an action which started and finished in the past and lasted for some time; the result of the action is visible in the present
4. She has been sorting out the mail for an hour.	d) to express anger, annoyance or irritation

1- …; 2 - …; 3 - …; 4 - …

4.2 Put the verbs into the correct tense (Present Perfect or Present Perfect Continuous).

1. I …… (call) for you for half an hour. Where …… (be)?

2. …… (you/find) a folder with our catalogues? I …… (look) for it for ages.

3. I …… (not/discover) it yet, but I …… (not /work) for a long time yet.

4. Our engineers …… (learn) English for three years, so their level of language proficiency …… (improve).

5. His voice is gone now because he …… (argue) all morning about the necessity to change the layout of the factory floor.

6. They…… (negotiate) the contract on energy supply for several days, but they…….. (not achieve) any progress.

7. You look very tired. You …… (work) very hard lately.

8. He …… (read) the maintenance guide for two hours, but he …… (read) not more than 50 pages so far.

9. Look! Somebody …… (delete) all our files.

10. ‘Sorry, I'm late.’ ‘That's all right. I …… (not/wait) long.

4.3 Use the verbs in one of present tenses.

Robert 1) …… (consider) himself a successful engineer. He 2) …… (work) for 3TIER, which is a global leader in renewable energy information services. They 3) …… (provide) scientifically-based assessment and forecasting for wind, solar, and hydro energy. He 4) …… (be) an Energy Policy Analyst. He 5) …… (like) travelling on business and at the moment he 6) …… (work) on the projects in France and Germany. He 7) …… (speak) fluent German, and he 8) …… (learn) French now.

Robert 9) …… (be) in his present position for four years. But today he 10) …… (face) a dilemma. In the last two weeks he 11) …… (receive) two proposals: to get a promotion to the Senior Energy Policy Analyst and to join another leading company. He 12)……

(hope) for a promotion at 3TIER for a long time, but now he 13)…… (hesitate). A new company 14) …… (promise) higher salary, better perspectives and the chance to get an experience abroad, he 15)…… (always/dream) about.

4.4 Complete the sentences with *some* or *any*.

1. The seats aren't reserved. You can have … seat you like.
2. We went to the electrical appliances exhibition three days ago and saw … new interesting models.
3. Would you like … coffee? The General Manager is talking to client at the moment. He'll see you in a couple of minutes.
4. … employee of the company is able to explain you the general policy of the company.
5. I've looked through the report, but there is … useful information in it.
6. We've phoned … hotels, but unfortunately there are … rooms available.
7. We won't have …creative ideas without you. You are a very talented person.
8. At the moment we are … money to continue our research.
9. I never meet … more reliable electrical engineering company.
10. We are going to a business trip next month. But I suppose we'll have … fun in Paris as well, we are planning to see … famous attractions.
11. If you have … problems, don't hesitate to contact us … time you like.
12. It's a pity, but … new ideas were put forward at the meeting.

5 SKILLS

Write a web page giving the history of an electrical engineering company in Ukraine you know about. Include information about the following:

- the origins of the company, who founded it and when;
- key dates in its history;
- the opening of new branches, or factories;

- services provided;
- important contracts and orders it obtained;
- its managerial team;
- significant recent events.

The following words can be useful:

found	*produce*	*launch*
establish	*provide*	*expand*
begin	*achieve*	*increase*
manufacture	*reach*	*decrease*
develop	*improve*	*reduce*

UNIT 8

1 LEAD-IN

1. What is any strategy commonly based on?
2. Why is developing a country long-term energy strategy of particular importance?
3. What do you think must be taken into consideration in Ukraine energy strategy development?

2. READING

UKRAINE'S ENERGY STRATEGY TO 2030

One fundamental prerequisite for the application of sector budget support programmes is the existence of a coherent and nationally-driven policy. Ukraine's key energy policy and priorities are defined in its own Energy Strategy to 2030, which was approved by the Cabinet of Ministers in 2006.

The strategy proceeds from the understanding that Ukraine has a limited endowment of conventional energy resources and also lacks of diverse primary energy sources, such as oil, natural gas, and nuclear fuel. Therefore, in order not to rely on imports, the strategy highlights the importance of rational energy use, the promotion of domestic energy production, and switching to alternative energy sources. Obviously, the strategy also recognises the significance of Ukraine's position as a key transit route for predominantly Russian oil and gas and, therefore, the basic premise of the strategy is to maintain and enhance this transit role.

The major objectives of Ukraine's energy strategy are to ensure its energy security and status as a significant transit country. It is inseparably connected with a set of priorities, which include increasing transit volumes via its territory, reducing the economy's energy intensity, improving its energy efficiency, integrating with the European energy system and expanding domestic energy production. In order to meet these objectives and priorities a set of policy measures is specified, which include modernising and rehabilitating infrastructure that transports hydrocarbons, diversifying supplies and routes, increasing domestic production of coal and nuclear energy, implementing broad-ranging energy efficiency measures, adopting relevant EU laws and undertaking pricing reform. Moreover, these measures represent and entail a radical shift in the underlying principles governing the Ukrainian energy sector as they require a move from monopoly organisation to more competitive structures, the modification of the state role from manager to regulator, forsaking central planning for liberalisation and providing opportunities for private sector participation rather than relying solely on state ownership.

The Energy Strategy to 2030 represents a significant milestone as it provides an all-encompassing overview and comprehensive strategy of the energy sector, by building upon the various state programmes developed mostly in the 1990s for the various sub-sectors. Nevertheless, some of the projections in the strategy are contentious as they were not developed on the basis of detailed statistical data and models. There also appears to be too strong an emphasis on supply measures at the expense of energy demand and efficiency. More importantly, the strategy lacks

specific measures to meet its stated objectives and it is therefore difficult to assess likely developments and the probability of realising its targets.

By way of example, the strategy calls for significant energy savings by the end of the projection period (specifically, a 50 per cent reduction in energy intensity compared to 2005), which is anticipated to derive from structural shifts in the economy, as it moves away from heavy industry and toward the tertiary sector, and significant "technological improvements". The document also envisages a doubling or more in the production of coal and nuclear power to reduce reliance on natural gas. While the projected energy savings and structural changes are feasible, in the context of other countries' experience, the document lacks detailed, specific and concrete actions (including demand-side measures, financing and regulatory/legislative changes) that are necessary to meet the ambitious targets set by the strategy. We expect that this and other similar issues are expected to be discussed and further elaborated in the context of "Component 2: Ad-hoc assistance related to fulfillment of indicators for the Energy Sector Budget Support Programme" of the Complementary Technical Assistance to the EU-Funded Budget Support to Ukraine's Energy Strategy Implementation project.

2.1 Reading comprehension. Answer the following questions to the text.

1. Where are Ukraine's key energy policy and priorities defined and formulated?
2. What does the approved strategy proceed from?
3. What measures must be undertaken not to rely on energy import?
4. Does the strategy recognise the significance of the country position as a key transit route?
5. What are the major objectives of Ukraine energy strategy?
6. What measures have been specified to meet the energy objectives and priorities?
7. Does the Ukrainian energy sector demand any reconstruction?
8. What role must belong to the private sector in the country long-term energy strategy?
9. What are the ways to provide significant energy savings which must become a crucial energy policy demand?

3 VOCABULARY

3. 1 Match the following word pairs from the text given above to make word partnerships. Use them in the sentences of your own.

1. energy	a) production
2. rational	b) fuel
3. state	c) sector
4. domestic	d) sources
5. transit	e) savings
6. energy	f) use
7. nuclear	g) ownership
8. private	h) route

1-…; 2-…; 3-…; 4-…; 5-…; 6-…; 7-…; 8-…

3.2 Which word or expression from the text can mean the following?

1. combine some elements in a way that makes something more effective	a) enhance
2. accept officially	b) approve
3. improve something	c) milestone
4. the basic systems and structures that a country or organization needs in order to work properly	d) undertake
5. improve smth so that it returns to the good condition it was in before	e) infrastructure
6. a very important event in the development of something	f) entail
7. take action or make changes that you have officially decided should happen	g) rehabilitate
8. involve something as a necessary part or result	h) integrate

9. accept that you are responsible for a piece of work, and start to do it	i) implement
10. expect that something will happen and be ready for it	j) anticipate

1-…; 2-…; 3-…; 4-…; 5-…; 6-…; 7-…; 8-…; 9-…; 10-…

3.3 Choose the right words to fit into the passage and read about the energy perspectives in the USA.

resources generation emissions dramatically demand fuel trends relies activities

Market 1) ……. suggest that the demand for energy 2) ……. will rise 3) ……. over the next 25 years:

- Global 4) ……. for all energy sources is forecast to grow by 57% over the next 25 years.
- U.S. demand for all types of energy is expected to increase by 31% within 25 years.
- By 2030, 56% of the world's energy use will be in Asia.
- Electricity demand in the U.S. will grow by at least 40% by 2032.
- New power 5) ……. equal to nearly 300 (1,000MW) power plants will be needed to meet electricity demand by 2030.
- Currently, 50% of U.S. electrical generation 6) ……. on coal, a fossil 7) …….; while 85% of U.S. greenhouse gas 8) …….; result from energy-consuming 9) ……. supported by fossil fuels.

4 LANGUAGE REVIEW

4.1 Match the sentences in the Past Perfect or the Past Perfect Continuous with the correct description.

1. They had left before we got to the office.	a) a complete past action which had visible results in the past

2. He had been working as an electrical engineer for 15 years before he resigned.
3. They were sad because they had failed the test.
4. She had never been abroad, and it was her first business trip to a foreign country.
5. They were absolutely exhausted because they had been working since the morning.

b) a past action of certain duration which had visible results in the past
c) life experience before some past action
d) a past action which occurred before another past action or before a stated past time
e) an action continuing over a period up to a specific time in the past

1- …; 2 - …; 3 - …; 4 - …; 5 - …

4.2 Rewrite the sentences using the Past Simple or the Past Perfect Tense.

1. Mike finished reading the instructions. Then he left the office.

   When Mike …… .

2. She stepped into her office. The telephone rang.

   She … just …….. .

3. They became famous. They presented their first model.

   ……. only after …… .

4. Mary shook his hand. She saw him before.

   As Mary …….. she realized that …….. .

5. Our company put a lot of money into developing advanced technology. The company became profitable.

   Only after our company …… .

4.3 Put the verbs in brackets into one of the past tenses.

1. When I …….. (arrive), I ……..(register) at the reception and ……(go) straight to the conference hall.
2. I …….. (work) hard, so I ……..(feel) that I …….. (deserve) a holiday.

3. When the supervisor …….. (come), I …….. (finish) all my work, so I …….. (have) very little to do.

4. I …….. (always/believe) that with my specialty it would be very easy to get the job.

5. We …….. (discuss) the report about the results of the starting test for over an hour when we …….. (agree) that Mike should prepare some detailed figures before the next meeting.

6. How … you …….. (feel) when you …….. (hear) about moving our office?

7. I …….. (know) that they …….. (already/deliver) all the lighting installations.

8. The technician …….(install) some new software on my PC when the short circuit …… (occur).

9. Robert …….(try) to change a light bulb when he …… (slip) and …….. (fell).

10. We …… (be) late because we …… (have) some car problems. By the time we ……. (get) to the train station, Susan …… (wait) for us for more than two hours.

4.4 Choose the correct option.

1. 'Are you going to test the system?'

   'No, I …….. it yesterday.'

   A did **B** had done **C** had been doing

2. 'Did you see the project manager?'

   'No, he …….. by the time I arrived at the site. '

   A was leaving **B** had been leaving **C** had left

3. 'How often do you have to read design specifications?'

   'I …….. do it every day.'

   A recently **B** usually **C** never

4. ‘Did the electrician arrive on time?’

‘No, I …….. for an hour before he arrived.’

A was waiting **B** had waited **C** had been waiting

5. ‘This installation is very efficient. Is it new?’

‘No, we …….. it for ages.’

A had **B** have **C** have had

6. ‘What time do you finish work?’

‘Actually, I …….. .’

A have just finished **B** finish **C** had just finished

7. ‘What about the project financial situation?’

‘It …….. better slowly.’

A gets **B** is getting **C** has been getting

8. ‘Where is Ann?’

‘She …….. on the phone when I saw her.’

A was talking **B** talked **C**had talked

9. ‘Did you enjoy your trip?’

‘Yes, we …….. at a fabulous hotel. The company paid for all our expenses.’

A have stayed **B** had stayed **C** stayed

10. ‘Sorry for being late.’

‘We …….. our discussion.’

A had almost finished **B** almost finishes **C** have almost finished

4.5 Read the micro dialogues choosing the right option.

1. – This year we have a lot of orders.

   – Yes, but not as *many/much* as we used to.

2. – We’d better hurry.

   – Definitely. The bus goes in *few/a few* minutes.

3. – We’ve got so *much/ many* work to do.

   – I suppose we’ll be in the office till late.

4. – There is *much/many* enthusiasm for this idea.

– I absolutely agree. I'm sure we'll get a success.

5. – They have made *little/few* progress in their research.

– Now I understand why they are looking so upset.

6. – *Much/many* debate has been generated by his article.

– I've heard. He has *a lot of/much* fresh ideas.

7. – Many/much remains to be done before we launch the installation into operation.

– Yes, we have to check up *a lot/a little.*

8. – They didn't show *much/many* interest in our new electrical grid.

– Do you think they are not going to sign the contract?

4.6 Underline the words that are possible in these sentences.

1. Surprisingly, there wasn't much *discussion/debate/quarrel* at the meeting about the necessity to reconstruct the electrical shop.

2. A new factory provided jobs in the region where there wasn't much *job/work/jobs* employment.

3. I don't have much *information/details/facts/news* to help you in these circumstances.

4. Many *questions/research/problems* need to be considered before the final decision can be made.

5. Are there many *equipment/computers/facilities* at your plant?

5 SKILLS

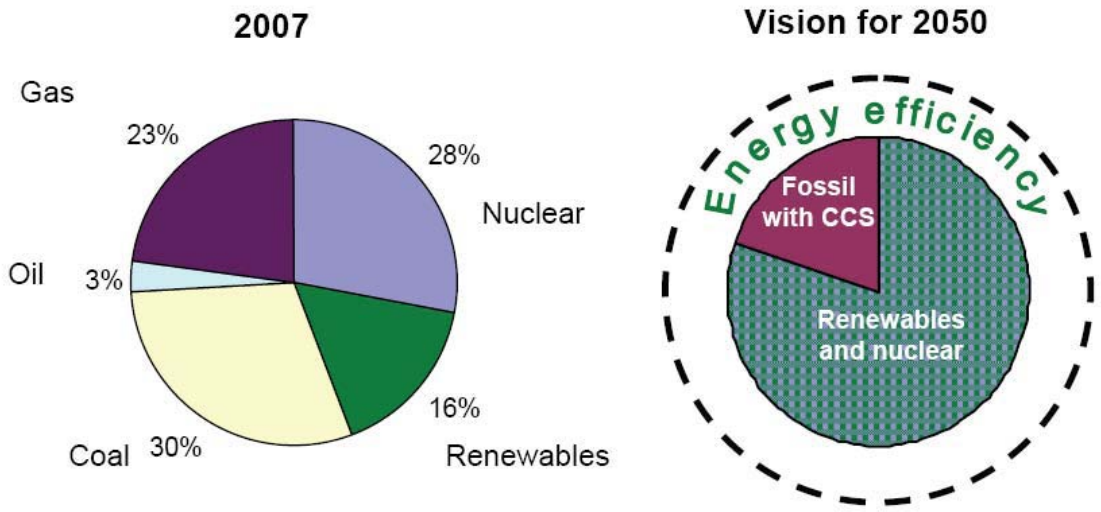
Get acquainted with the opinion of Günther H. Oettinger, European Commissioner for Energy, analyze the charts below and formulate the priorities for European energy policy in the coming years.

> *' Energy is the heart of our economy and our society. If we invest in our energy system, we are investing in the future. If, however, we neglect our energy supply and energy efficiency, the consequences could be profound and irreversible. In this respect, our plans regarding energy technology and infrastructure are crucial.'*

'I would like to specifically highlight three topics that are of fundamental importance for the proper functioning of the internal market in energy and our future energy supply, namely technology, infrastructure and finances.'

(Günther H. Oettinger, European Commissioner for Energy
Securing Europe's Energy Supply
The priorities for European energy policy in the coming years)

Sources of electricity production in the EU today and tomorrow



UNIT 9

1 LEAD-IN

1. Does scientific and technological progress bring only positive influence on people life?
2. Give any example of scientific inventions which lately were against the humanity and brought catastrophic consequences?
3. What do you think about the necessity of socio-ethical control of science? Does it concern the power industry as well?

2 READING

‘Knowledge comes, but wisdom lingers.’

Alfred Tennyson

THE ETHICS AND SOCIAL RESPONSIBILITY OF SCIENTISTS AND TECHNOLOGISTS

Modern scientific and technological progress has raised a complicated problem of the social responsibility of scientists. Here are some of them: How far are scientists responsible for the application of their work? If they are, how can they best fulfill this responsibility? What is the ethics of scientific exploration, how is it related to the universal ethical values of mankind? Finally a number of scientists have raised the problem of the socio-ethical control of research referring to man, the justification for a moratorium on some fields of research threatening man and the entire mankind. Is such control possible in whatever form? Will it not restrict the freedom of research? How is this freedom related to the social and humanistic responsibility of scientists and technologists?

Scientists are realizing more and more clearly the indisputable fact that their social responsibility, the role of the ethical principle in science should grow in geometrical progression, if mankind and science itself are to develop at least in arithmetic progression. The ethics of science is being asserted as a *sine qua non* of effective performance of humanistic-oriented scientific research. There is no alternative to this either for science or for humanity.

In mastering nuclear energy man has developed a power which, unless controlled by his intellect, could extinguish life and snuff out our planet's blue glow. This idea is convincingly proved by the disaster at the Chornobyl atomic power station in Ukraine. Such accidents take place from lack of knowledge in the fields of natural and technical sciences or from lack of consciousness about the negative consequences of the application of the scientific and technological innovations.

Science and technology by themselves are not a source of ethics and values. They can tell you what will happen if you do this or that: for instance, how

many people might be killed by a nuclear bomb, but the decision on whether to develop the bomb cannot be a scientific decision. This can only be judged by something outside science — ethics. Scientists and technologists should be aware of the consequences of their discoveries, projects.

Hence the crucial importance is attached today to the problem of socio-ethical control of science with a view to its humanistic orientation and development as a science for man. We need a new ethics and it must be many-sided. The belief that only one idea is true is tremendously dangerous. If you have only one way of looking at the world you abuse it. The new ethics must recognize that there are many ways out of the human predicament, which present different aspects of the same situation. Only on the basis of such an ethical attitude can we solve the problems which threaten the world today.

2.1 Reading comprehension. Mark the statements as true (T) or false (F).

1. As scientific and technological progress stimulates human development, there is not any necessity to raise a problem of the social responsibility of scientists. _____

2. It is never reasonable to restrict the freedom of research. _____

3. The role of the ethical principle is growing faster than the science itself. _____

4. Nuclear energy is considered to be particularly dangerous unless controlled by human intellect. _____

5. Scientists and technologists can't be responsible for the consequences of their discoveries. _____

6. A new ethics must be many-sided and must recognize that there are many ways out of the human predicament. _____

3 VOCABULARY

3. 1 Match the following word pairs from the above given texts to make word partnerships.

A.

1. be responsible	**a)** by the disaster
2. be related	**b)** for the application
3. be judged	**c)** to the universal values
4. be aware	**d)** by smth outside science
5. be proved	**e)** of the consequences

1-…; 2-…; 3-…; 4-…; 5-…

B.

1. the application	**a)** of mankind
2. the fields/freedom	**b)** of exploration
3. the control	**c)** for man
4. the values	**d)** of research/science
5. the science	**e)** of work/innovations

1-…; 2-…; 3-…; 4-…; 5-…

3.2 Which word or expression from the text can be used to mean the following.

A.

1. to learn or understand smth completely	**a)** to develop
2. to do or have what is required or necessary	**b)** to extinguish
3. to be a danger to smth	**c)** to threaten
4. to destroy smth	**d)** to fulfill
5. to think of or produce a new idea, product, etc. and make it successful	**e)** to master

1-…; 2-…; 3-…; 4-…; 5-…

B.

1. a careful study of a subject	**a)** consciousness
2. how well or badly you do sth	**b)** decision
3. knowledge about the structure and behavior of the natural and physical world	**c)** performance
4. a choice or judgement that you make after thinking	**d)** research
5. the state of being aware of sth	**e)** science

1-…; 2-…; 3-…; 4-…; 5-…

3.4 Complete the following passage with the verbs given below.

successful scientists communicate scientific
Researchers practitioners others students

The Social Foundations of Science

Throughout the history of science, philosophers and 1) ……. have sought to describe a single systematic procedure that can be used to generate 2) ……. knowledge, but they have never been completely 3) …… . The practice of science is too multifaceted and its 4) …… are too diverse to be captured in a single overarching description. 5) …… collect and analyze data, develop hypotheses, replicate and extend earlier work, 6) …… their results with 7) ……., review and critique the results of their peers, train and supervise associates and 8) ……., and otherwise engage in the life of the scientific community.

3.5 Complete the sentences using correct forms of words given in brackets.

1. Scientific discovery leads …… to technology which often changes the world in permanent and violent ways. (DIRECT)
2. I think it's unethical to put the world's most …… technology into the hands of the people who have done the most harm to the world. (ADVANCE)
3. It is a multi-disciplinary journal that explores …… issues of direct concern to scientists and engineers. (ETHIC)
4. Science is much more than curiosity – the observing, measuring, analyzing – and the …… of facts. (ACCUMULATE)
5. Social responsibility is becoming an ever more important issue in the …… of science and society. (INTERACT)

4 LANGUAGE REVIEW

4.1 Match the sentences with the correct description of a future form.

1) What are you doing next Tuesday? a) predictions about the future

2) I'm sure they will like a new design.
3) Look at the sky! It is going to rain.
4) Jim's plane leaves at 10 tomorrow morning.
5) I'm going to change the plan.
6) I'm sorry to hear that. I'll find out what the problem is right now.
7) By the end of this month, he'll have been working in the company for ten years.
8) This time next week we'll be signing a contract.
9) It is not necessary to phone Tom. I'll be seeing him at work later on today.
10) She will be 30 this year.
11) By the end of the year we'll have sold around 1,000 installations.
12) Stop being late all the time or I'll fire you.
13) Will you be going to the head office this afternoon? Can you take these documents.

b) on-the-spot decisions or offers
c) actions/events/situations which will definitely happen in the future and which cannot be controlled
d) promises, threats, warnings, requests, hopes
e) intentions or ambitions
f) predictions when there is evidence that something will happen in the near future
g) fixed arrangements in the near future
h) timetables/programmes
i) actions which will be in progress at a stated future time
j) actions which will definitely happen in the future, as a result of a routine or arrangement
k) when we ask politely about someone's plans for the near future, in order to see if our wishes fit in with their plans
l) for actions which will be finished before a stated future time
m) to emphasise the duration of an action up to a certain time in the future.

1-…; 2 - …; 3 - …; 4 - …; 5 - …; 6 - …; 7 - …; 8 - …; 9 - …; 10 - …;

11- …; 12- …; 13- …

4.2 Put the verbs in brackets into the correct tense denoting a future activity.

1. – I'm so tired. I have been working all night and I'm about to fall asleep.
   – I ……(get) you some coffee.
2. – They don't like him to know about our new model.
   – I promise I …… (not/tell) him about it.
3. – Is Jerry going with us to the branch office?
   – I don't know, but I …… (see) him at the meeting tomorrow. I …… (ask) him then.
4. – (you, do) me a favor, Sam?
   – Sure, what do you want me to do?
   – I …… (change) the broken light bulb in the lamp above the desk. I need someone to hold the ladder for me while I am up there.
   – No problem, I (hold) it for you.
5. – The phone is ringing.
   – I …… (get) it.
6. – I heard you're taking a French class at the community college.
   – Yeah, I …… (go) to Paris next spring and I thought knowing a little French would make the trip easier.
7. – I'm arriving next Friday.
   – When you …… (get off) the plane, I …… (wait) for you.
8. – How are you today?
   – I am sick of rain and bad weather! Hopefully, when we …… (wake) up tomorrow morning, the sun …… (shine) .
9. – How is the report? Is it typed?
   – Not yet, but I …… (finish) it by 11 o'clock.
10. –What are your future plans?
    – I know definitely that …… (not study) engineering. I'm rather bad at maths.
11. – If you …… (need) to contact me sometime next week, I

…… (stay) at the Sheraton in San Francisco.

– OK. Let's keep in touch.

12. – It is so hot in here!

– I …… (turn) the air-conditioning on.

13. – What ……(plan) to do this summer?

– I ……(spend) a couple of weeks with my family and then ……(go) somewhere in Europe.

14. – We are late.

– Yes, this taxi is so slow. By the time we get there, the meeting …… (finish).

15. – …… (you/use) the conference room next Tuesday?

– I'm not sure yet.

4.3. Rewrite the sentences using *be (not) to, due to, about to, on the point of, plan/intend/propose/hope/agree/promise (not) to.*

1. You will arrive at the office at 7.30 in the morning.
2. They are making plans. They are going to install a new lighting control system.
3. Do you promise that you won't tell anyone about this incident?
4. I hope our company will meet future energy needs and adapt to new environmental regulations.
5. The economy will collapse in the very near future; it will happen at any time now.
6. The Government has made a promise. They will not increase payment for electrical energy during the next year.
7. I'm sorry I can't talk to you now. I'm going to the meeting in a minute.
8. You must not enter the building of the power plant without signing your name in the register.
9. The City Council has decided what they would like to do one day. They are going to close the nuclear power plant
10. The train will depart at 8.25.
11. The factory will be closed for three weeks for repairs.

12. The Chief Executive is going to announce his resignation.

4.4 Use *both … and*, *either … or*, *neither … nor*, or *not only … but also* to rewrite the sentences.

1. James wants to take an electrical engineering training course in Edinburgh; so does David.
2. Tracy hasn't been to a business trip abroad and Stella hasn't either.
3. The teachers thought the exam results were unfair and so did the students.
4. James will bring the manuals, or else Paul will.
5. Mary and David are not particularly creative.
6. Cathy is going to the meeting, or else Andrea is.
7. Mike hasn't seen the project yet, neither has Daniel.

4.5 Fill in: all, every, none, both, either, neither.

1

Mary: Have you decided what electrical engineering company you would like to apply to for the job?

John: Not yet. I have visited some electrical engineering companies in our city, but 1) …… of them need somebody with at least 5-year experience in the field. 2)…… of them provide training. But I want 3) …… to get some experience and have some prospects for promotion.

Mary: Why don't you try to send your CV and covering letters to smaller companies? Two friends of mine did it. 4) …… found the job and were successful. In fact, 5) …… of them are complaining. You have to start from something.

John: Right you are. I'll try. I've seen a couple of advertisements. 6) …… were quite interesting.

2

Alice: Have you decided where to go on holiday?

Judy: Not yet. I have a brochure but 7) …… the hotels are so expensive. 8) ……of them provide full-board and I want 9) …… half-board or self-catering.

Alice: Why don't you rent a room? 10) …… people say it is cheap and enjoyable. If you share a room, 11) …… of you pay a lot of money.

Judy: Alright, let's have a look at some rooms in Italy or Spain. They 12) …… look nice and I see that 13) …… room has a sea-view. 14) …… of the hotel rooms available has any view at all.

Alice: Right – so it's 15) …… Italy or Spain.

Judy: Yes. 16) …… of them look perfect.

5 SKILLS

As a result of the current discussion how further global warming could be prevented or at least mitigated, the revival of nuclear power seems to be in everybody's or at least in many politicians' and scientists' mind.
Divide into two teams. The first must put forward the arguments to support the idea of nuclear power development, while the other one must present the opposite point of view. Use the ideas mentioned below.

PROS OF NUCLEAR POWER

- Nuclear power generation does emit relatively low amounts of carbon dioxide (CO2). The emissions of green house gases and therefore the contribution of nuclear power plants to global warming is therefore relatively little.

CONS OF NUCLEAR POWER

- The problem of radioactive waste is still an unsolved one. The waste from nuclear energy is extremely dangerous and it has to be carefully looked after for several thousand years (10,000 years according to United States Environmental Protection Agency standards).

- High risks: Despite a generally high security standard, accidents can still happen. It is technically impossible to build a plant with 100% security. A small probability

- This technology is readily available, it does not have to be developed first.

- It is possible to generate a high amount of electrical energy in one single plant.

of failure will always last. The consequences of an accident would be absolutely devastating both for human being and for the nature.

- Nuclear power plants as well as nuclear waste could be preferred targets for terrorist attacks. No atomic energy plant in the world could withstand an attack similar to 9/11 in New York. Such a terrorist act would have catastrophic effects for the whole world.

- During the operation of nuclear power plants, radioactive waste is produced, which in turn can be used for the production of nuclear weapons.

- The energy source for nuclear energy is Uranium. Uranium is a scarce resource; its supply is estimated to last only for the next 30 to 60 years depending on the actual demand.

- The time frame needed for formalities, planning and building of a new nuclear power generation plant is in the range of 20 to 30 years.

COMMUNICATION ACTIVITIES

UNIT I

Name: **Age:** _____ **Nationality:** _____ **Marital status:** _____ **Salary:** _____ **Company:** _____ **Present position:** _____ _____ **Background:** _____ _____ **Present responsibilities:** _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	**Name:** Luis Menga **Age:** 31 **Nationality:** Brazilian **Marital status:** single **Salary:** 40,000 per annum **Company:** Global Electrical Engineering Inc, Austin, Texas **Present position:** Electrical Engineer **Background:** Bachelors of Electrical Engineering, Idaho State University, 2002 Circuits and Power Systems, Diploma, Arlington Technical Institute, 2002 **Present responsibilities:** • Perform Short-Circuit, Coordination and Arc-Flash Studies on electrical distribution systems of hospitals, schools, office buildings, industrial site, etc. • Perform site surveys to gather electrical equipment details needed to perform Power System Studies. • Design, draft original and revised drawings for engine control systems, remote monitoring and control systems and other electrical systems as required. • Prepare bills of materials for projects, create operating procedures for custom designed projects • Work with other departments as a team to ensure consistent quality and coordinated effort • Assist and troubleshoot electrical

_____ _____	issues at customer sites

Appendix 1

Irregular Verbs

There are about 180 irregular verbs. Some are very unusual. Here are the most useful.

First form	Second form	Third form	First form	Second form	Third form
All forms the same			***Second and third forms the same***		
cost	cost	cost	bend	bent	bent
cu	cut	cut	build	built	built
hit	hit	hit	feel	felt	felt
hurt	hurt	hurt	keep	kept	kept
let	let	let	leave	left	left
put	put	put	light	lit	lit (lighted)
set	set	set	lend	lent	lent
shut	shut	shut	mean	meant	meant
split	split	split	meet	met	met
Similar sound group			send	sent	sent
beat	beat	beaten	shoot	shot	shot
bit	bit	bitten	sleep	slept	slept
eat	ate	eaten	spend	spent	spent
fall	fell	fallen	spoil	spoilt	spoilt
forget	forgot	forgotten	get	got	got
forgive	forgave	forgiven	lose	lost	lost
give	gave	given	sat	sat	sat
hide	hid	hidden			
shake	shook	shaken	bring	brought	brought
take	took	taken	buy	bought	bought
tear	tore	torn	fight	fought	fought
wear	wore	worn	think	thought	thought
			catch	caught	caught
blow	blew	blown	teach	taught	taught
flow	flew	flown			
know	knew	known	feed	fed	fed
throw	threw	thrown	find	found	found
grow	grew	grown	have	had	had
draw	drew	drawn	hear	heard	heard
			hold	held	held
begin	began	begun	make	made	made
drink	drank	drunk	pay	paid	paid
ring	rang	rung	read	read	read

sing	sang	sung	say	said	said
shrink	shrank	shrunk	sell	sold	sold
			stand	stood	stood
freeze	froze	frozen	understand	understood	understood
speak	spoke	spoken	tell	told	told
steal	stole	stolen	stick	stuck	stuck
break	broke	broken	win	won	won
wake	woke	woken	shine	shone	shone
choose	chose	chosen	***All forms different***		
drive	drove	driven	be	was/were	been
write	wrote	written	become	became	become
ride	rode	ridden	come	came	come
			do	did	done
			go	went	gone
			run	ran	run
			see	saw	seen
			show	shown	shown
			spill	spilled	spilt

Confusing Verbs

lay	laid	laid	laying	- to put sth in a particular position
lie	lay	lain	laying	- to be or put yourself in a flat position
lie	lied	lied	lying	- to say sth that you know is not true

Appendix 2

Word Formation

- **Prefixes** are syllables which we add before certain words to form new words. The meaning of the new words depend on the prefix that has been used.

  anti- = ***against***(anticlockwise)
  bi- = ***two*** (bilingual)
  co- = ***with***(co-educational)
  counter- = ***in the opposite direction*** (counterattack)
  ex- = ***previous, former***(ex-president)
  inter- = ***between*** (interstate)
  mis- = ***done wrongly or badly*** (misread)
  mono- = ***one*** (monolithic)
  multi- = ***many*** (multicultural)
  non- = ***not*** (nonexistent)
  out- = ***more, better*** (outlast)
  over- = ***(done) to a great extent*** (overdo)
  post- = ***after*** (postwar)
  pre- = ***before*** (prenuptial)

pro- = ***in favour of*** (pro-American)
re- = ***again*** (redesign)
semi- = ***half*** (semi-circle)
sub- = ***under, less*** (subordinate)
super- = ***big, more*** (superior)
trans- = ***from one side, group etc to another*** (transatlantic)
tri- = ***three*** (triathlon)
under- = ***not enough*** (underdeveloped)
uni- = ***one*** (uniform)

The prefixes below are used to express opposite meanings.

de- destabilize, dethrone
dis- disadvantage, disbelief
in- insufficient **BUT**
il- (***before*** **l**) illegal
im- (*before* b, m, p) immature, improbable
ir- (***before*** **r**) irregular **BUT**unreal, unremarkable
non- non-dairy
un- unattractive, uncivilized

Some prefixes are added to words to form verbs.

en- courage – encourage
BUTem-*before*b,m,p) body – embody

- **Suffixes** are syllables which we add to the end of certain words to form new words.
  - **Nouns referring to people**
    - **verb + *-er/-or/-ar (***work – worker,act – actor, burgle – burglar)
    - **noun/verb/adjective + *-ist***(social – socialist, piano – pianist, natural – naturalist)
    - **verb + *-ant/-ent*** **(**assist – assistant, reside – resident)
    - **noun + *-an/-ian***(republic – republican, Italy – Italian)
    - **verb + *-ee (passive meaning)***(employ – employee)
  - **Nouns formed from verbs**
    -age post – postage
    -al propose – proposal
    -ance perform – performance
    -ation animate – animation
    -ence coincide – coincidence
    -ion televise – television
    -ment employ – employment
    pretend – pretension ***(verbs ending in –d/-t)***
    -sis hypothesise– hypothesis
    -tion describe – description

-ure close – closure
-y discover - discovery

- **Nouns formed from adjectives**
  -ance relevant – relevance
  -cy urgent – urgency
  -ence patient – patience
  -ion isolated – isolation
  -iness happy – happiness
  -ness sad –sadness
  -ity relative – relativity
  -ty royal – royalty
  -y honest – honesty

- **Adjectives formed from nouns**
  -ous nausea –nauseous
  -al nation – national
  -ic history – hystoric
  -ical theatre – theatrical
  -ish girl – girlish
  -ive suppression – suppressive
  -ful(with) dread – dreadful
  -less (without) name – nameless
  -ant brilliance – brilliant
  -able reason – reasonable
  -y wealth – wealthy
  -ly world –worldy

- **Adjectives formed from verbs**
  -able treat – treatable (verbs ending in **–d/-t**)
  -ible sense – sensible
  -ive exclude – exclusive
  -ate consider- considerate
  -ent differ – different

- **Verbs formed from adjectives**
  -en bright – brighten
  -ise real- realize

- **Verbs formed from nouns**
  -en strtenth - strenthen

Appendix 3

Pronunciation

Pronunciation of *–(e)s* ending (noun plurals and the 3 d person singular of verbs in the Present Simple)

/S/	after/**f/, /t/, /p/, /k/**	laughs, spots, drips, racks
/IZ/	after/**z/, /d□/, /t□/ , /s/, /□/**	houses,dodges, ditches, passes, lashes
/Z/	after **/b/, /p/, /m/, /d/, /l/, /n/, /v/**	dabs, rigs, beams, thrills, pains, leaves, toys

Pronunciation of *-ed* ending

/id/	after **/t/, /d/**	lifted, branded
/t/	after **/k/, /t□/, /f/, /s/, /□/, /p/**	baked, matched, laughed, lanced, dashed, trapped
/d/	after**/b/,/d□/, /m/, /v/, /g/, /l/, /n/, /z/, vowel +/r/**	snubbed, nudged, dimmed, craved, drugged, spilled, opened, cruised, cared

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